

Crash rates and costs

Crash reporting rates

The ratio of 'reported serious injuries' can be assessed by comparing seriously injured casualty numbers from Police crash reports to hospital admissions, given that a serious injury is generally one requiring hospital attention.

Figure 1.1 below indicates the serious injury reporting rate for each region.

Figure 1.1 Reporting rate serious injuries to hospital admissions

Region	1997	2001	2002	2003	2004
	1999	2002	2003	2004	2005
Northland	41%	52%	54%	59%	68%
Auckland	63%	63%	67%	67%	67%
Waikato	58%	65%	69%	68%	75%
Bay of Plenty	48%	54%	63%	60%	63%
Gisborne	53%	56%	56%	60%	55%
Hawkes Bay	57%	65%	72%	73%	79%
Taranaki	69%	70%	75%	70%	73%
Manawatu-Wanganui	64%	67%	63%	62%	69%
Wellington	62%	56%	65%	63%	72%
Nelson-Marlborough	74%	67%	72%	68%	71%
West Coast	58%	64%	71%	62%	70%
Canterbury	68%	69%	69%	68%	69%
Otago	62%	79%	79%	77%	83%
Southland	55%	68%	68%	61%	73%
New Zealand	60%	64%	67%	67%	70%

These variations in reporting rates need to be considered when viewing the trends in crashes and casualties shown in this report.

Figure 1.2 Crashes per 100 million vehicle kilometres travelled

	Local roads		State highways	
	Urban	Rural	Urban	Rural
Southland District	80	30	49	26
Group D	35	24	26	17
All NZ	36	26	32	16

Figure 1.3 Casualties per 100 million vehicle kilometres travelled

	Local roads		State highways	
	Urban	Rural	Urban	Rural
Southland District	101	47	79	44
Group D	45	35	37	26
All NZ	46	38	43	25

Figure 1.4 Peer group crash and casualty rates
Group D

City or District name	Crashes per					Casualties per					2007 Population	% of rural crashes
	10,000 Population (5 year average)	100 million vehicle kilometres travelled				10,000 Population (5 year average)	100 million vehicle kilometres travelled					
		Local roads		State highways			Local roads		State highways			
		Urban	Rural	Urban	Rural		Urban	Rural	Urban	Rural		
Ashburton	19	34	12	19	8	28	46	17	26	14	28400	54
Far North	6	45	36	46	30	59	63	57	67	47	57800	80
Franklin	6	47	27	0	9	43	58	39	0	14	62200	76
Horowhenua	6	23	10	35	17	41	26	19	47	27	30500	61
Manawatu	6	32	23	28	14	48	38	36	37	21	29100	80
Marlborough	5	46	18	35	20	37	60	28	41	29	44000	58
Masterton	6	40	24	38	30	37	49	36	47	46	23100	41
Matamata-Piako	6	46	18	26	15	41	54	24	34	23	31200	80
Rodney	5	26	27	20	13	38	35	40	30	20	94700	69
Selwyn	5	16	15	24	12	32	18	20	27	18	36400	91
South Taranaki	6	44	27	17	23	43	59	42	22	33	26800	73
South Waikato	6	27	30	15	18	53	32	48	24	31	22900	78
Southland	13	80	30	49	26	91	101	47	79	44	29100	88
Tasman	5	39	18	26	19	36	48	26	38	28	46100	74
Taupo	8	37	24	21	15	59	45	37	30	27	33500	69
Thames Coromandel	13	22	16	27	8	83	28	23	38	14	26800	16
Waikato	8	43	31	14	14	64	58	41	24	22	46000	81
Waimakariri	4	30	22	30	10	26	39	33	41	13	45100	70
Waipa	6	35	25	26	15	39	45	36	39	22	44200	67
Waitaki	9	47	26	55	20	65	59	36	68	31	20700	60
Western Bay of Plenty	4	32	22	14	17	39	38	34	22	27	43900	85
Whakatane	5	25	22	65	18	40	35	39	75	31	34400	72
Group D	7	31	24	26	16	46	40	35	36	25	856900	70
All New Zealand	5	36	26	32	16	36	46	38	43	25	4227700	41

Group D : Provincial towns and hinterland. (Population 20000-75000 and/or rural crashes greater than 55 percent)

Crashes and casualties per 100 million VKT are based on five years of reported injury on-road crash data (2003-2007) and December (2005) VKT.

Crashes and casualties per 10,000 population are based on five year average crash data (2003-2007) and Statistics NZ 2007 population estimates.

Figure 1.5 Crashes per 100 million vehicle-kilometres travelled - urban local roads

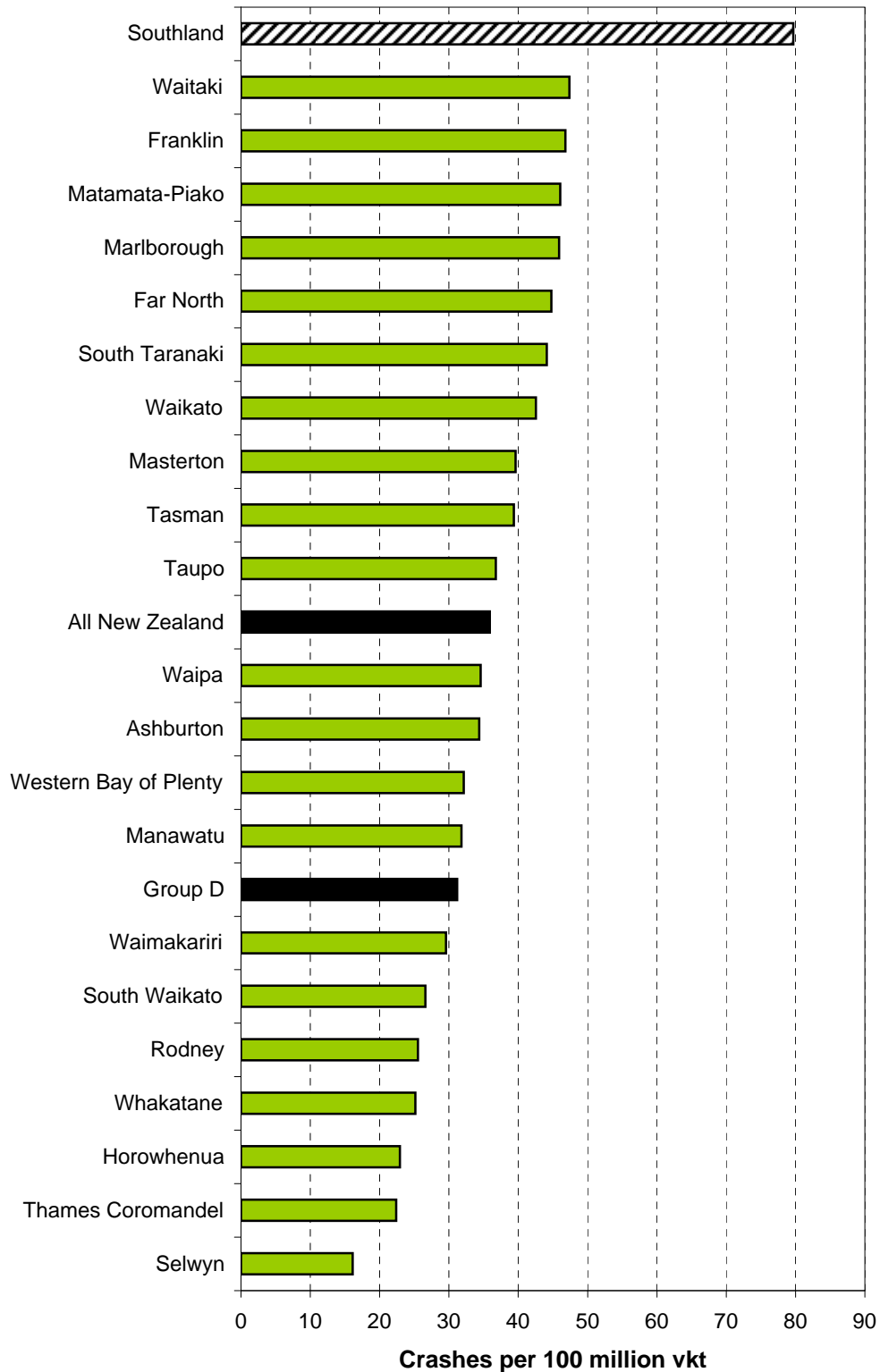


Figure 1.6 Crashes per 100 million vehicle-kilometres travelled - rural local roads

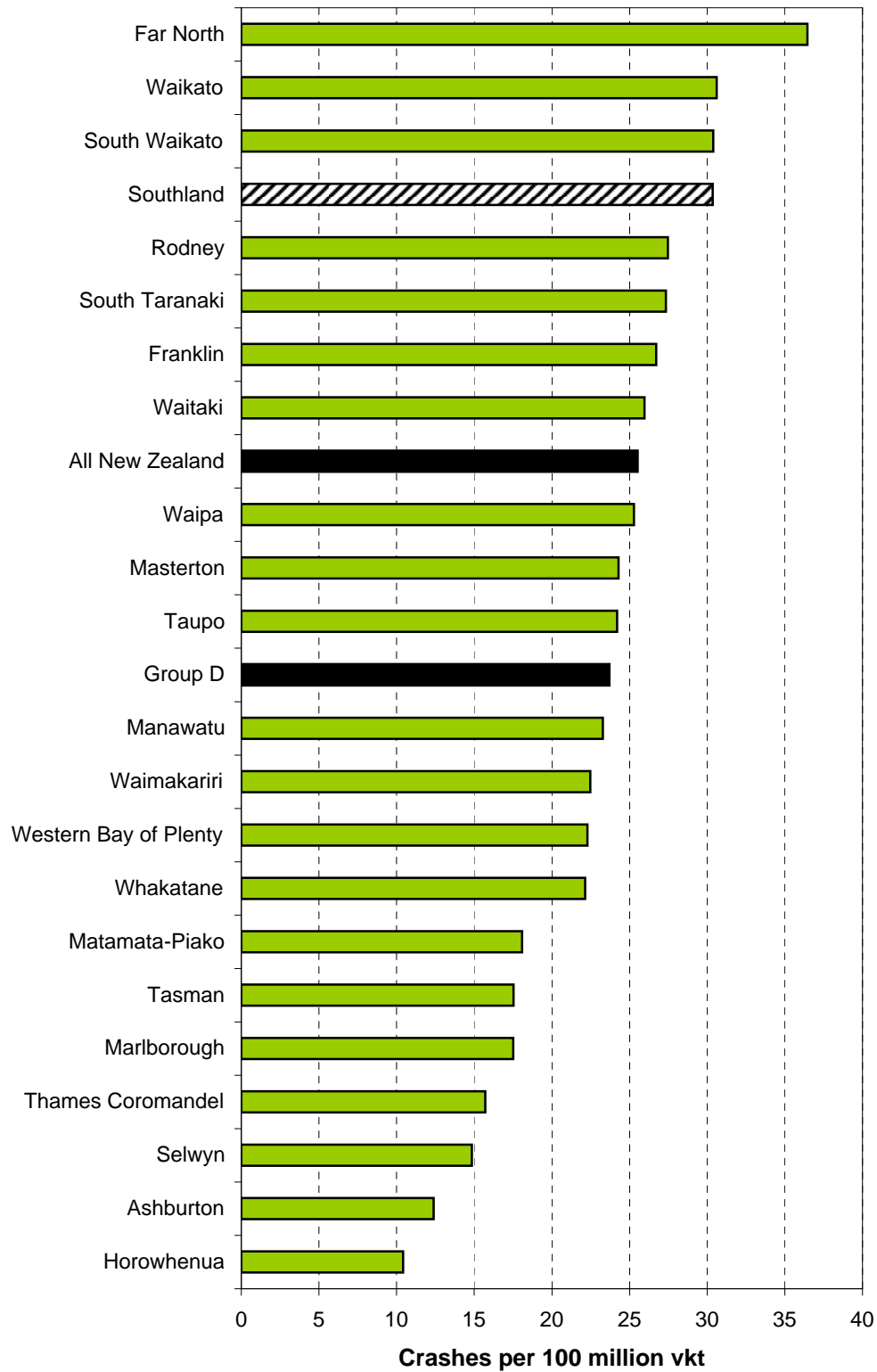


Figure 1.7 Crashes per 100 million vehicle kilometres travelled - urban state highways

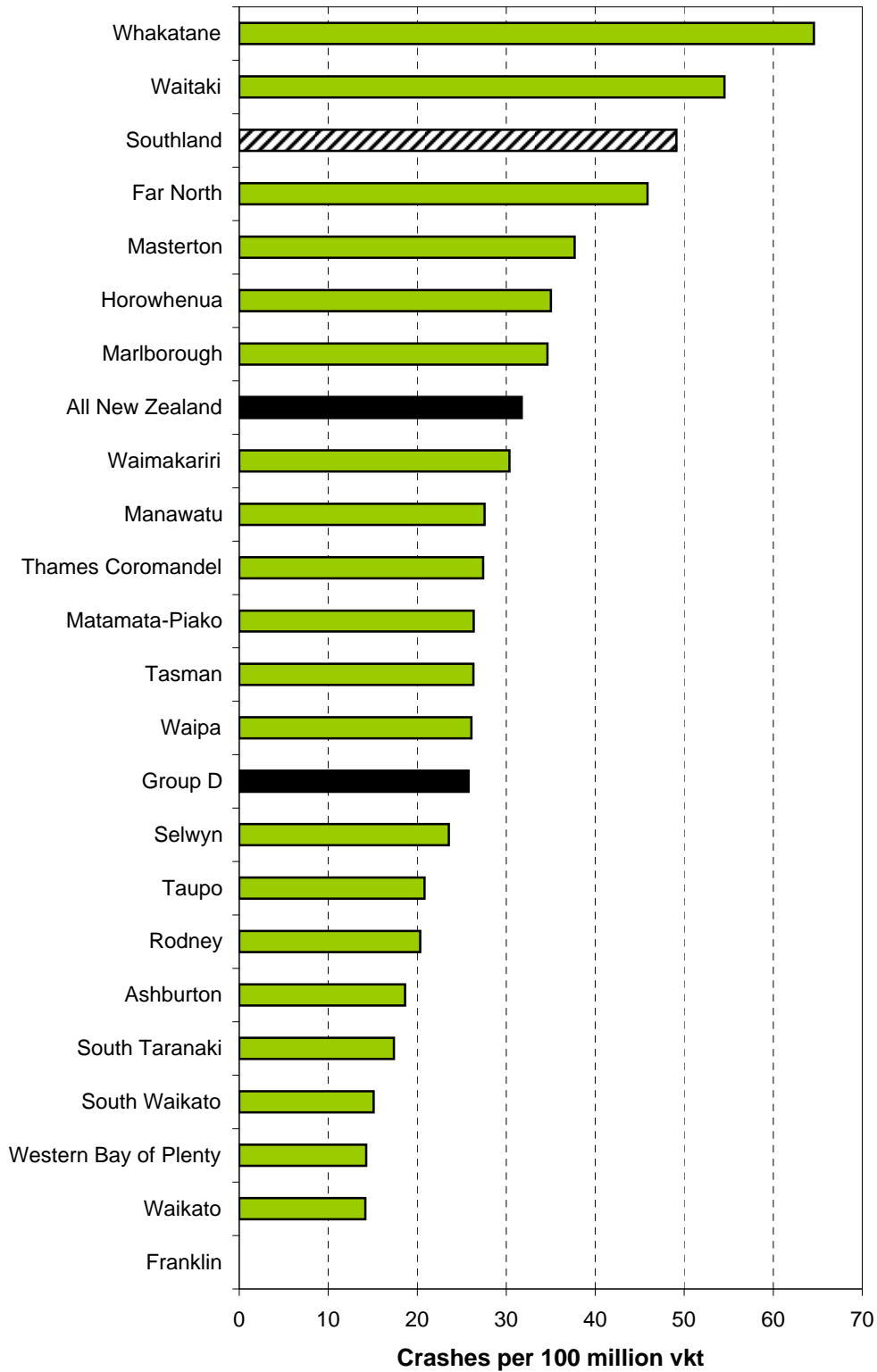
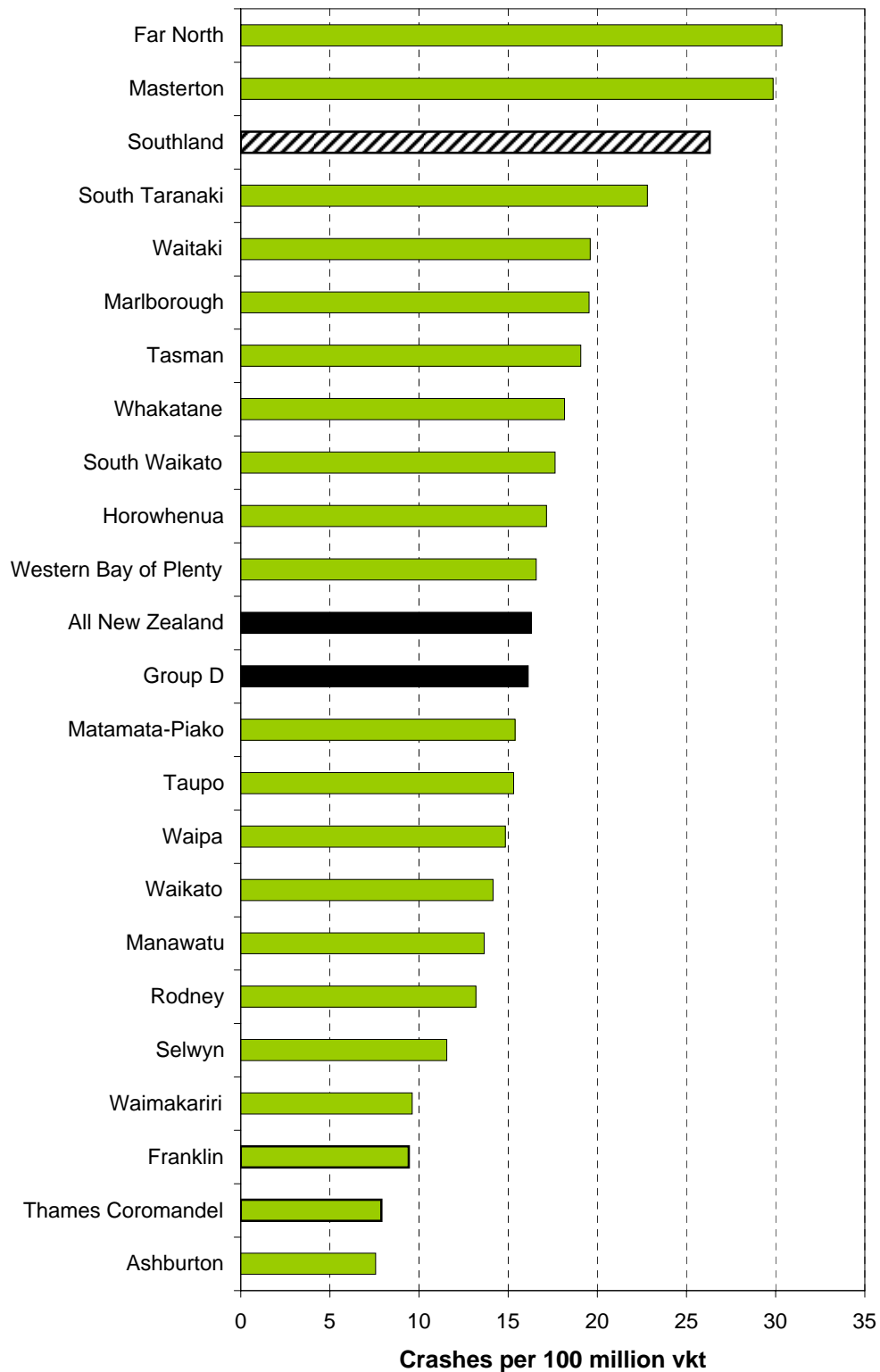
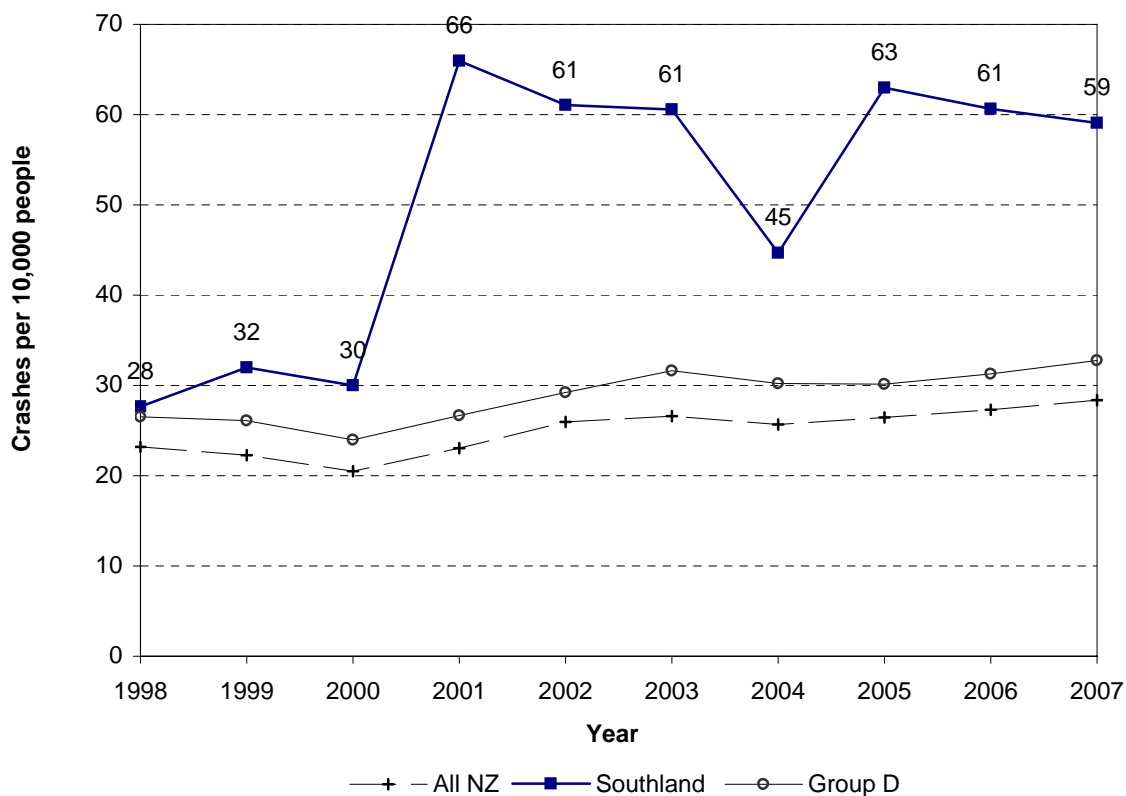


Figure 1.8 Crashes per 100 million vehicle-kilometres travelled - rural state highways



**Figure 1.9 Crashes per 10,000 people
Southland District**



**Figure 1.10 Casualties per 10,000 people
Southland District**

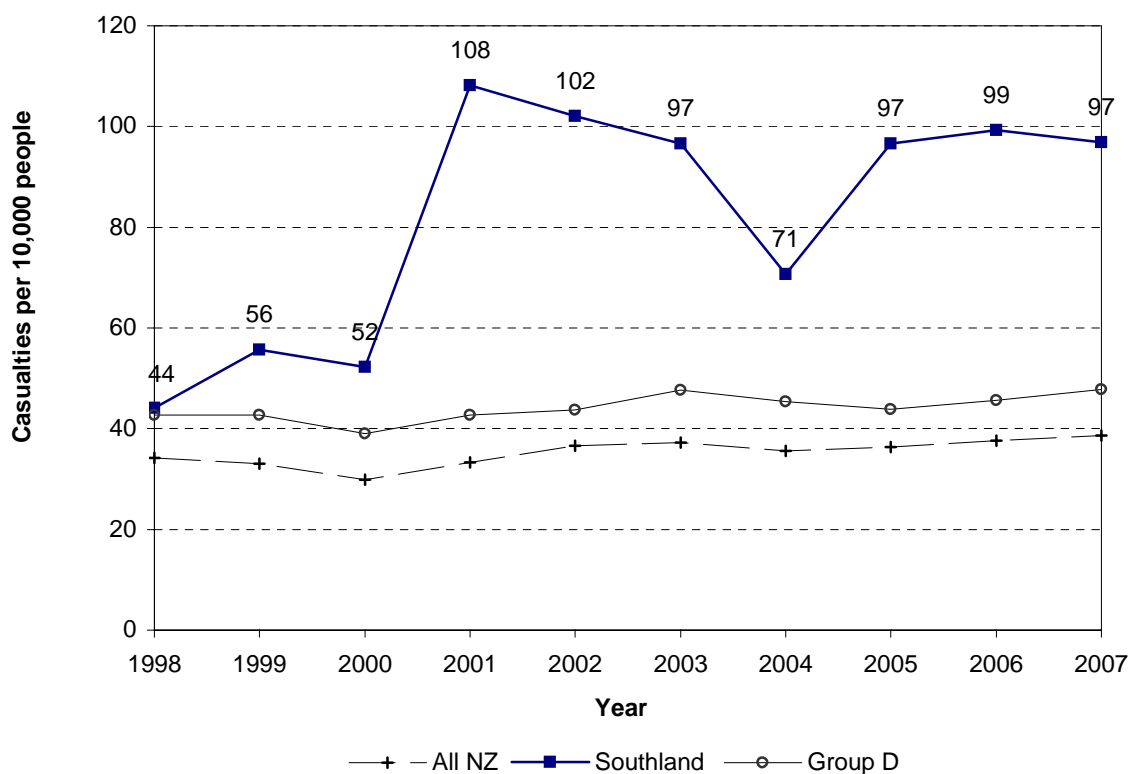


Figure 1.11 Social cost of crashes in Southland District in 2007

		Southland District	New Zealand
Local roads	urban	\$4.23	\$1,609.18
	rural	\$22.78	\$891.74
State highways	urban	\$2.00	\$323.26
	rural	\$31.48	\$1,533.31
Total		\$60.48	\$4,357.48

Note: Crash costs are in \$ millions

The social costs of a road crash and the associated injuries include a number of different elements:

- Loss of life and life quality
- Loss of output due to temporary incapacitation
- Medical costs
- Legal costs
- Property damage costs

The average value of a loss of life due to a road crash is estimated by the amount of money the New Zealand population would be willing to pay for a safety improvement that would result in the expected avoidance of one premature death. This is the willingness to pay based value of statistical life or VOSL. The VOSL was established at \$2 million in 1991. This has been indexed to the average hourly earnings (ordinary time) to express the value in current dollars. The updated VOSL is \$3.19 million (in June 2007 dollars). Based on several international and New Zealand studies on VOSL, the average loss of life quality for permanent impairments due to a serious and a minor injury were estimated to be 10% and 0.4% of the VOSL respectively.

Crash rates can vary due to reporting rates. These are adjusted on a regional basis in this report by comparing with hospitalisation rates.

The other social cost components are estimated based on a number of studies conducted during the early to mid-1990s and are updated for price changes by indexing to an appropriate price index.

For a detail discussion on this, please refer to 'The social cost of road crashes and injuries: June 2007 update', available at the Ministry of Transport's website:
[http://www.transport.govt.nz/socialcost/Social-cost-June-2007-update\[1\].pdf](http://www.transport.govt.nz/socialcost/Social-cost-June-2007-update[1].pdf)

The average social cost per reported crash (in June 2007 dollars) are estimated at:

Rural fatal crash	\$4,016,000
Rural serious crash	\$735,000
Rural minor crash	\$88,000
Urban fatal crash	\$3,539,000
Urban serious crash	\$626,000
Urban minor crash	\$79,000

These values include an allowance for non-reported injury crashes, and the totals in Fig. 1.11 also include an allowance for non-injury crashes.

Crash counts

Figure 2.1: Crash numbers and severity 2003 to 2007 - whole District

	2003	2004	2005	2006	2007	Total	%	Group D
Fatal crashes	8	4	6	6	4	28	3%	6%
Serious crashes	57	49	61	56	53	276	33%	23%
Minor crashes	113	78	117	115	115	538	64%	71%
Total injury crashes	178	131	184	177	172	842	100%	100%
Non-injury crashes	136	163	116	147	128	690		

Figure 2.2: Crash numbers and severity 2003 to 2007 - urban roads

	2003	2004	2005	2006	2007	Total	%	Group D
Fatal crashes	1	1	0	0	0	2	2%	3%
Serious crashes	3	12	3	10	8	36	34%	19%
Minor crashes	16	9	19	12	13	69	64%	78%
Total injury crashes	20	22	22	22	21	107	100%	100%
Non-injury crashes	30	32	32	35	26	155		

Figure 2.3: Crash numbers and severity 2003 to 2007 - rural roads

	2003	2004	2005	2006	2007	Total	%	Group D
Fatal crashes	7	3	6	6	4	26	4%	7%
Serious crashes	54	37	58	46	45	240	33%	24%
Minor crashes	97	69	98	103	102	469	64%	69%
Total injury crashes	158	109	162	155	151	735	100%	100%
Non-injury crashes	106	131	84	112	102	535		

Figure 2.4: Casualty numbers and severity 2003 to 2007 - whole District

	2003	2004	2005	2006	2007	Total	%	Group D
Fatal casualties	10	4	6	6	4	30	2%	5%
Serious casualties	69	54	72	67	65	327	24%	20%
Minor casualties	205	149	204	217	213	988	73%	75%
Total casualties	284	207	282	290	282	1345	100%	100%

Figure 2.5: Casualty numbers and severity 2003 to 2007 - urban roads

	2003	2004	2005	2006	2007	Total	%	Group D
Fatal casualties	1	1	0	0	0	2	1%	2%
Serious casualties	3	12	3	12	9	39	26%	17%
Minor casualties	22	15	24	23	24	108	72%	81%
Total casualties	26	28	27	35	33	149	100%	100%

Figure 2.6: Casualty numbers and severity 2003 to 2007 - rural roads

	2003	2004	2005	2006	2007	Total	%	Group D
Fatal casualties	9	3	6	6	4	28	2%	5%
Serious casualties	66	42	69	55	56	288	24%	22%
Minor casualties	183	134	180	194	189	880	74%	73%
Total casualties	258	179	255	255	249	1196	100%	100%

Figure 2.7 Number of injury crashes
Southland District all roads (urban & rural)

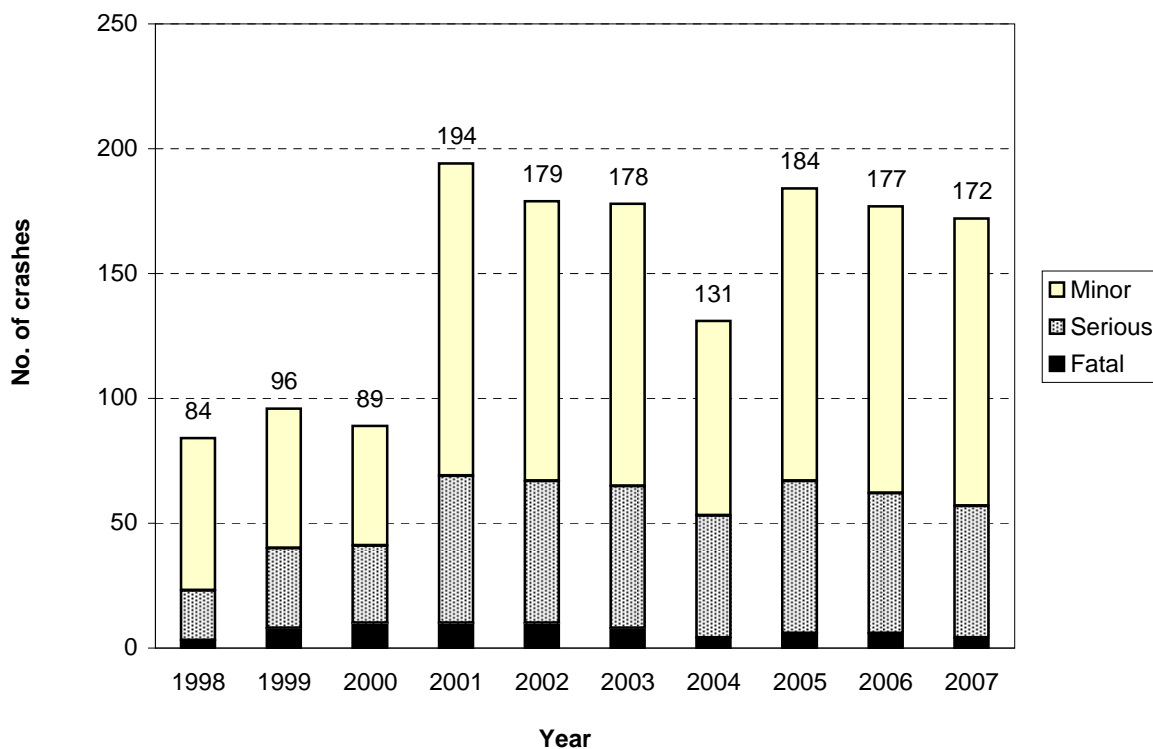
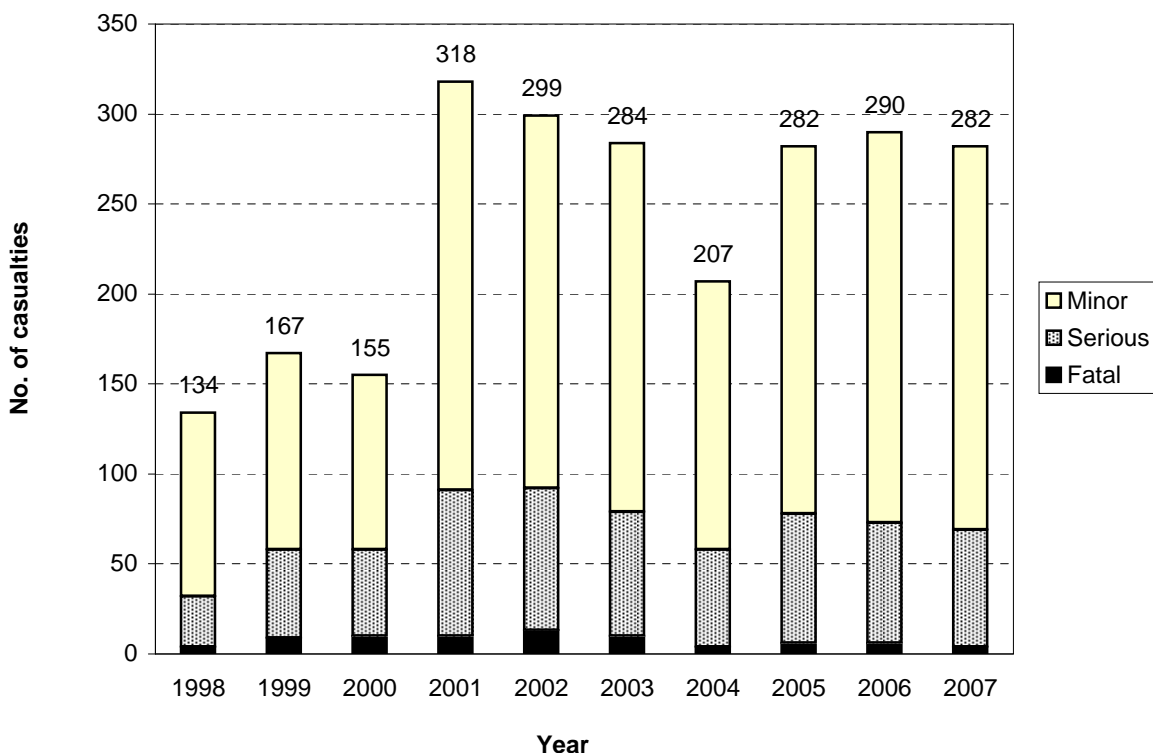
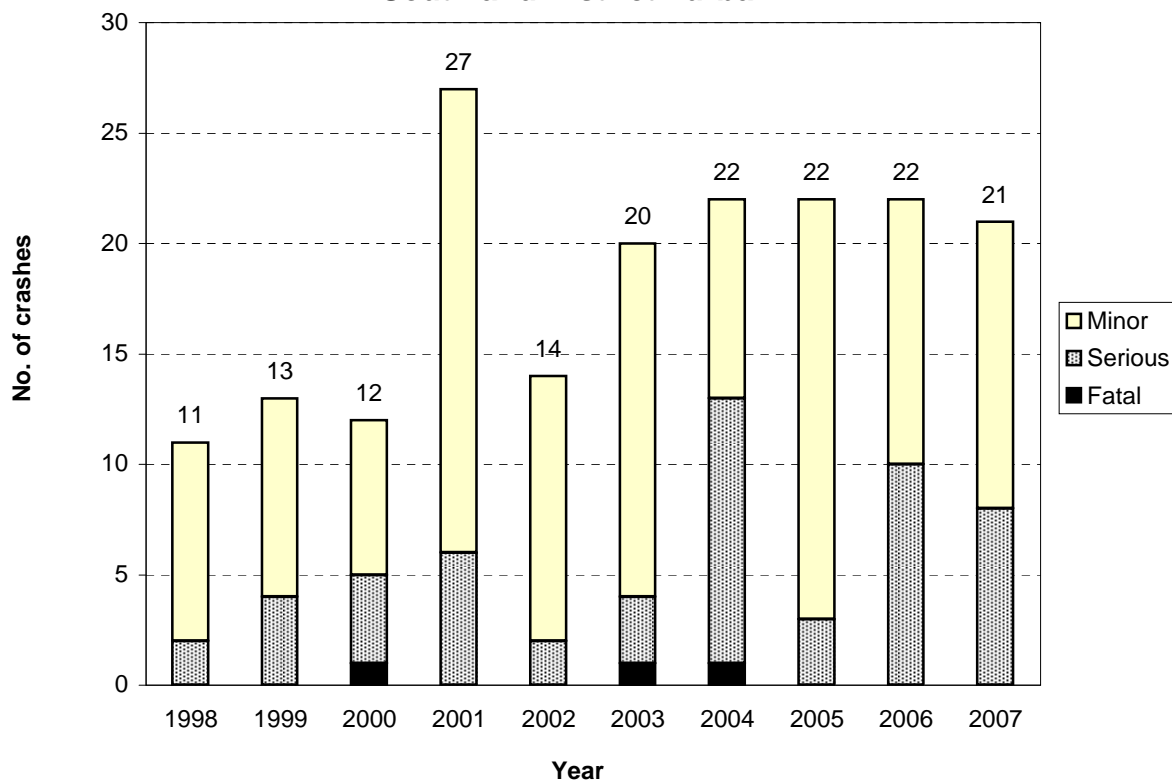


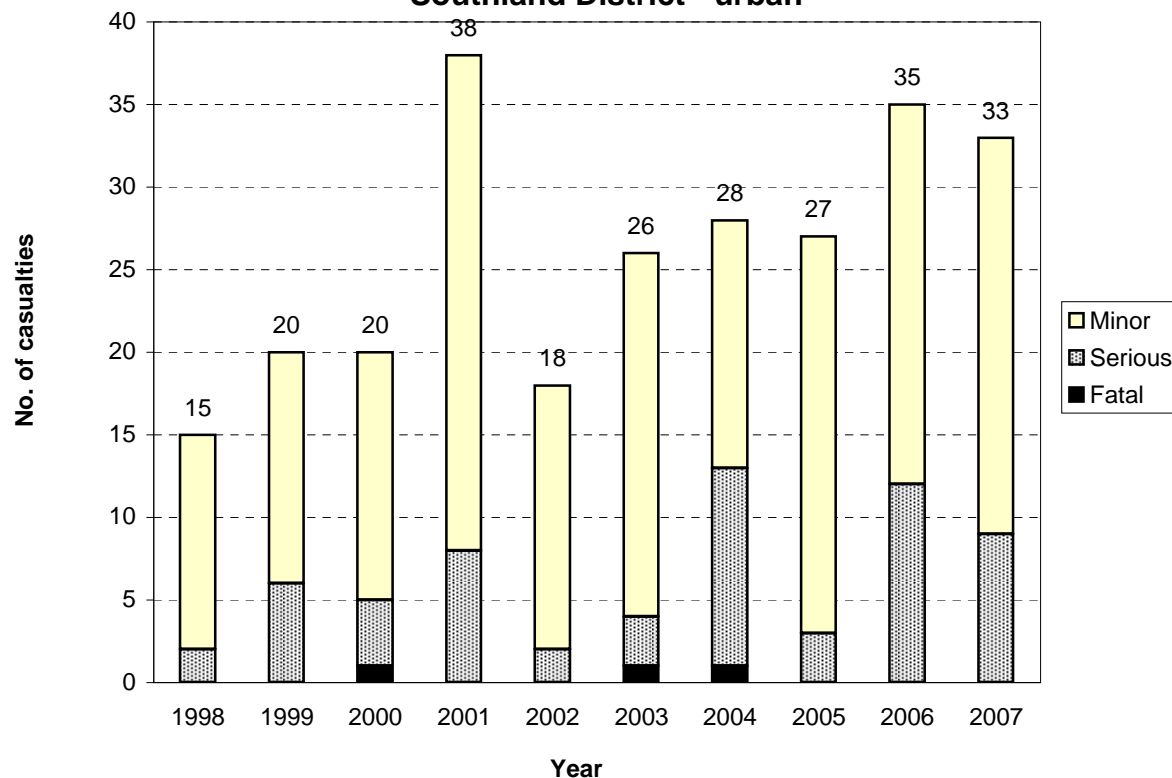
Figure 2.8 Number of casualties
Southland District all roads (urban & rural)



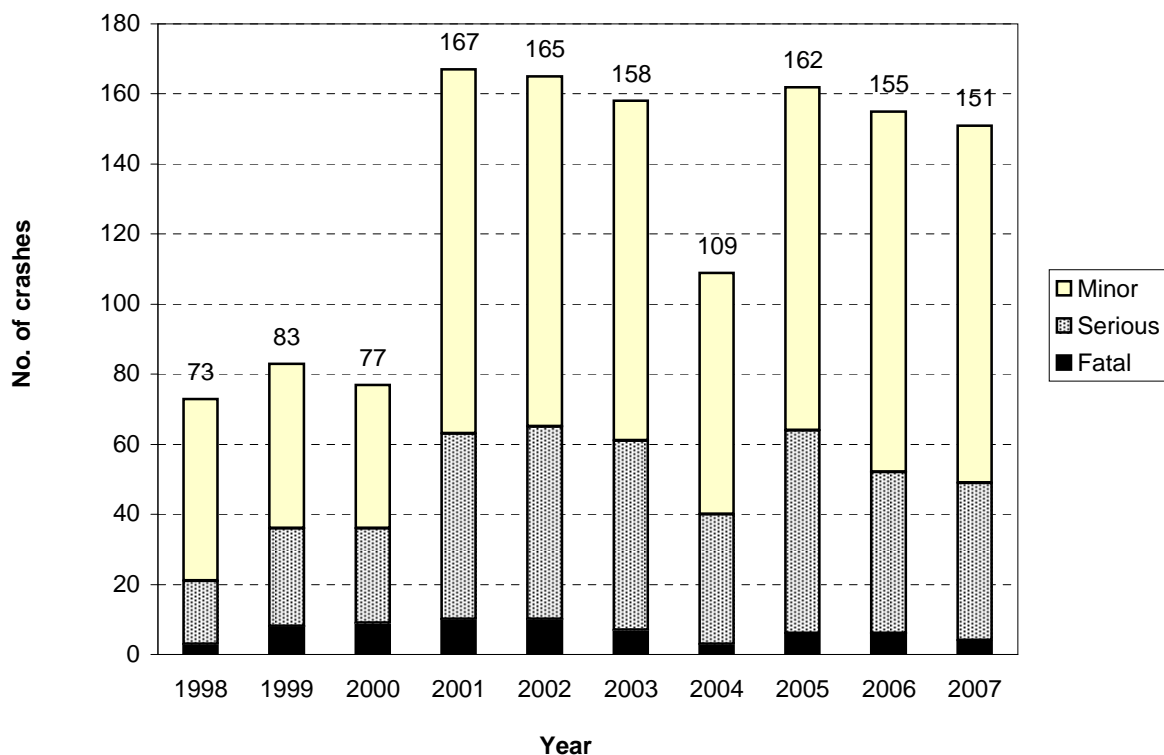
**Figure 2.9 Number of injury crashes
Southland District - urban**



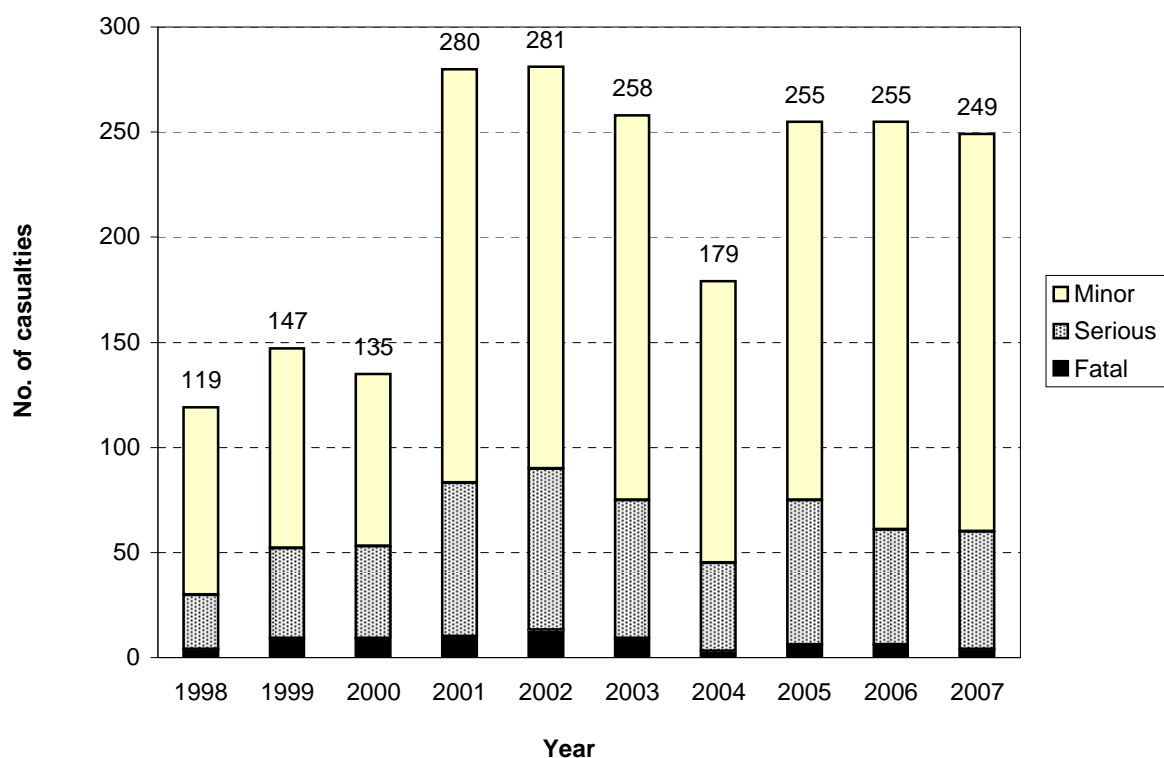
**Figure 2.10 Number of casualties
Southland District - urban**



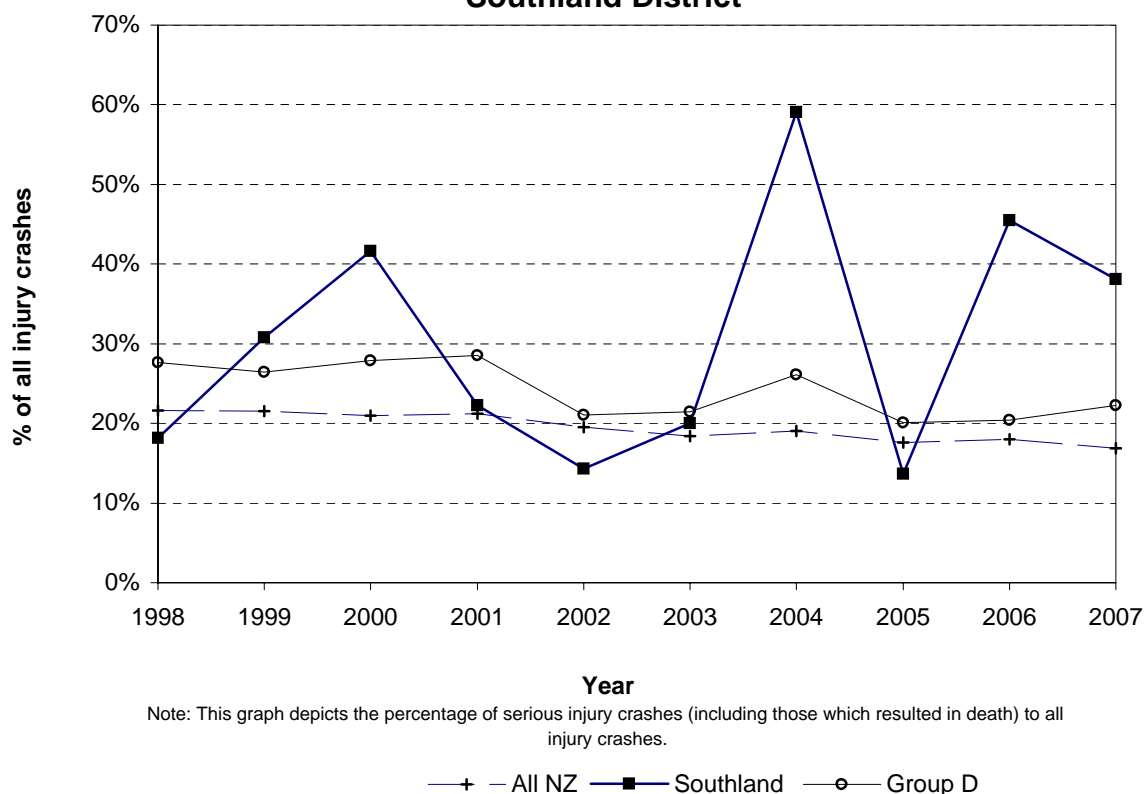
**Figure 2.11 Number of injury crashes
Southland District - rural**



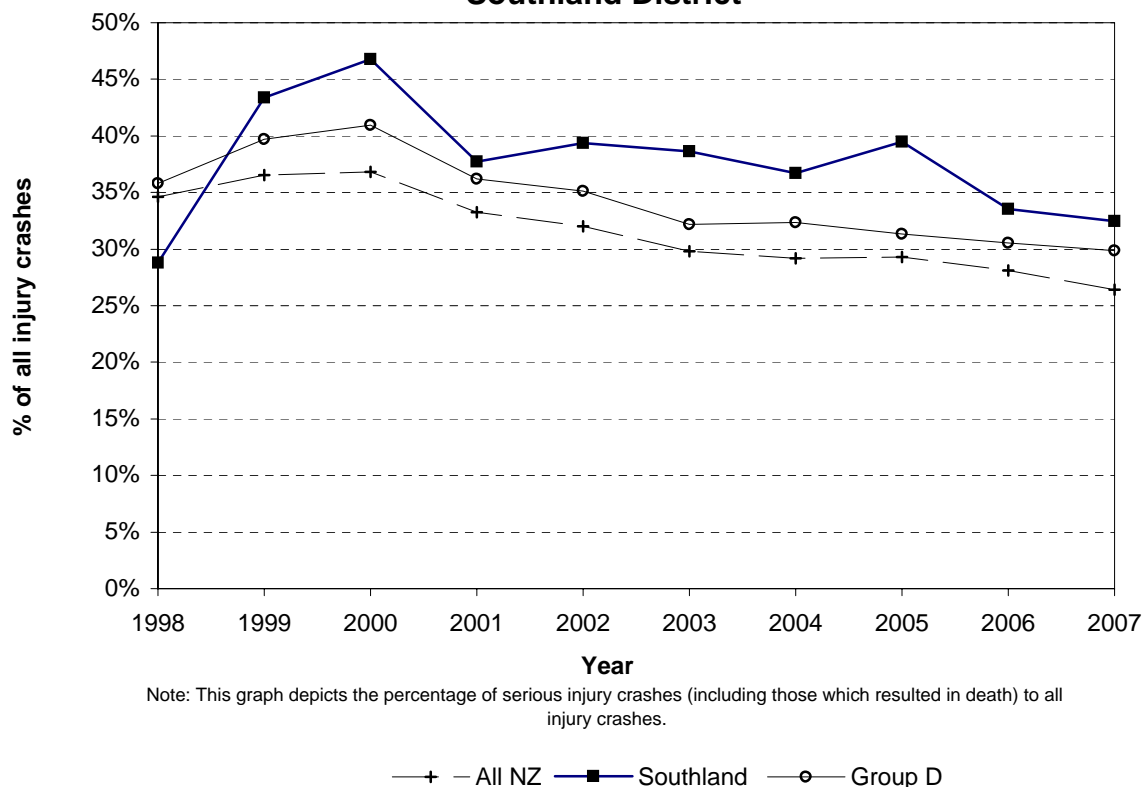
**Figure 2.12 Number of casualties
Southland District - rural**



**Figure 2.13 Severity ratio - urban
Southland District**

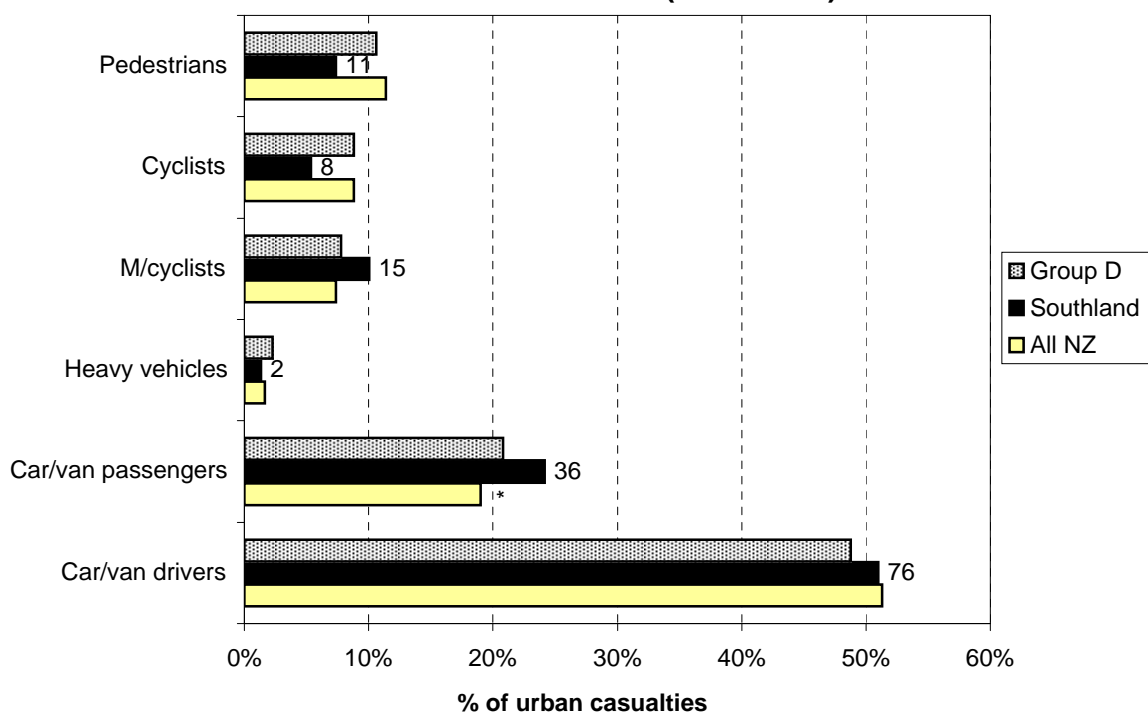


**Figure 2.14 Severity ratio - rural
Southland District**

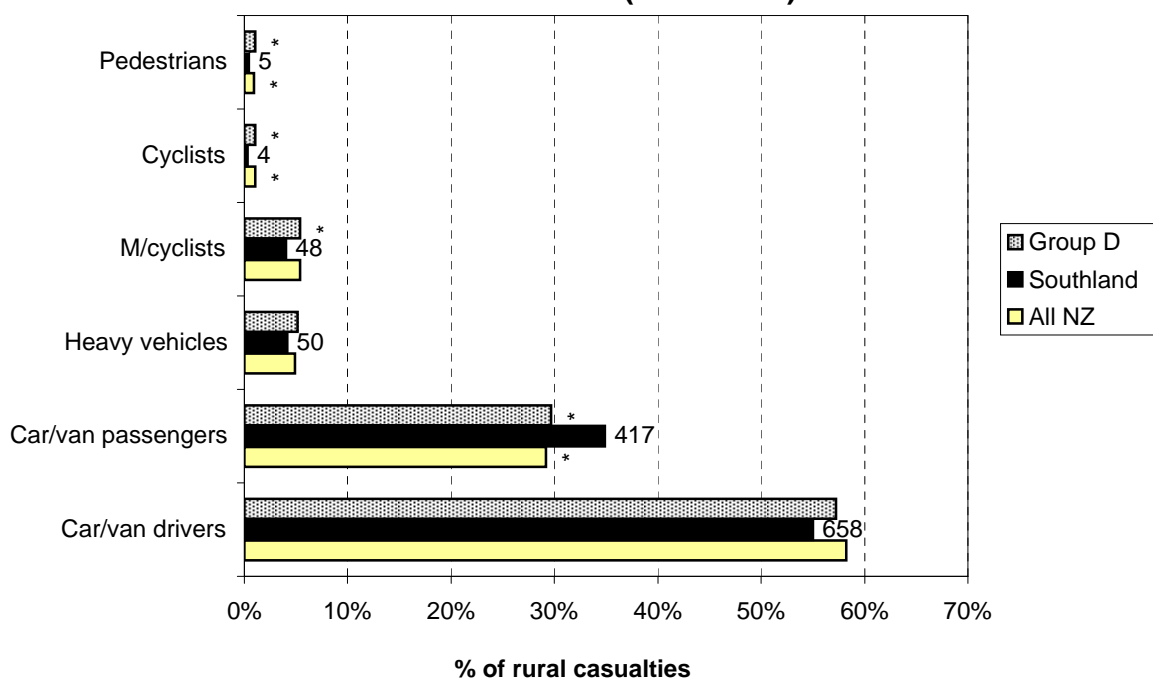


Road user statistics

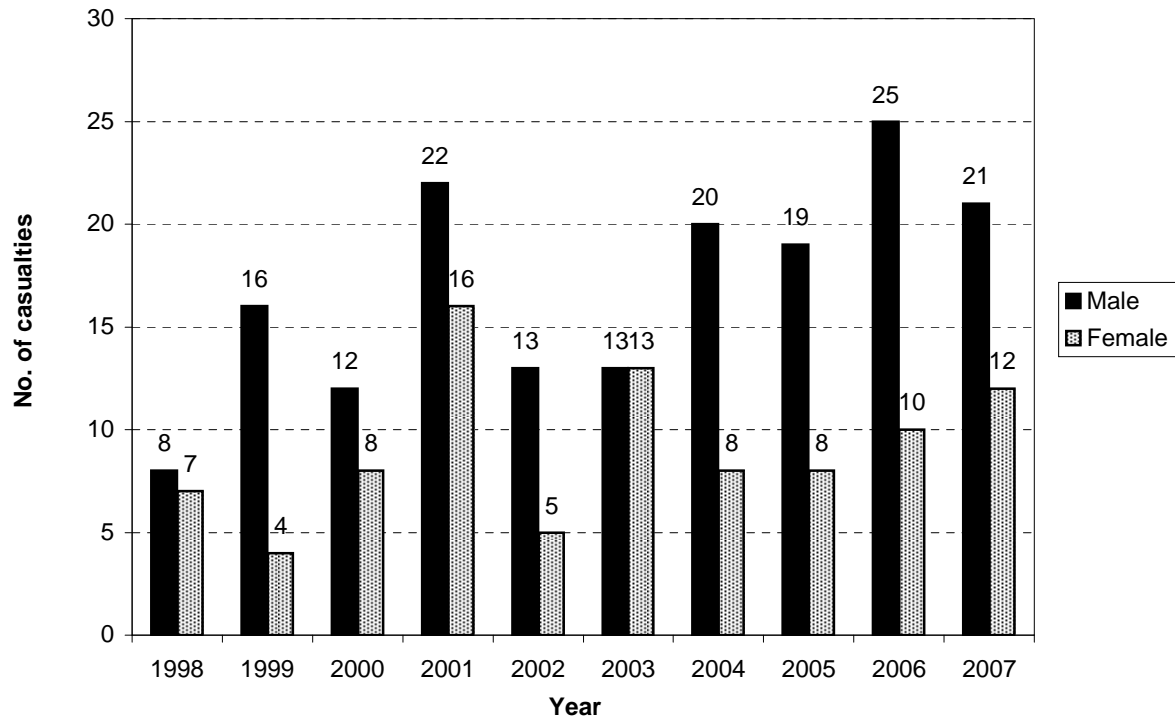
**Figure 3.1 Road user casualties - urban
Southland District (2003-2007)**



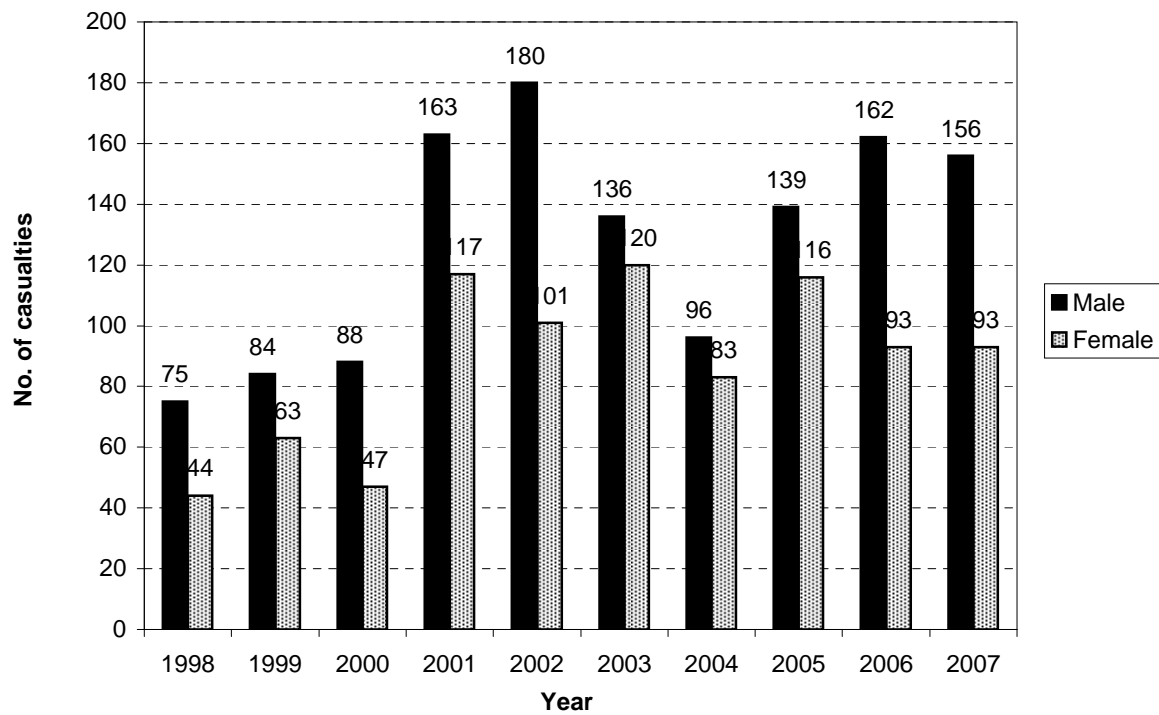
**Figure 3.2 Road user casualties - rural
Southland District (2003-2007)**



**Figure 3.3 Male/female casualties - urban
Southland District**

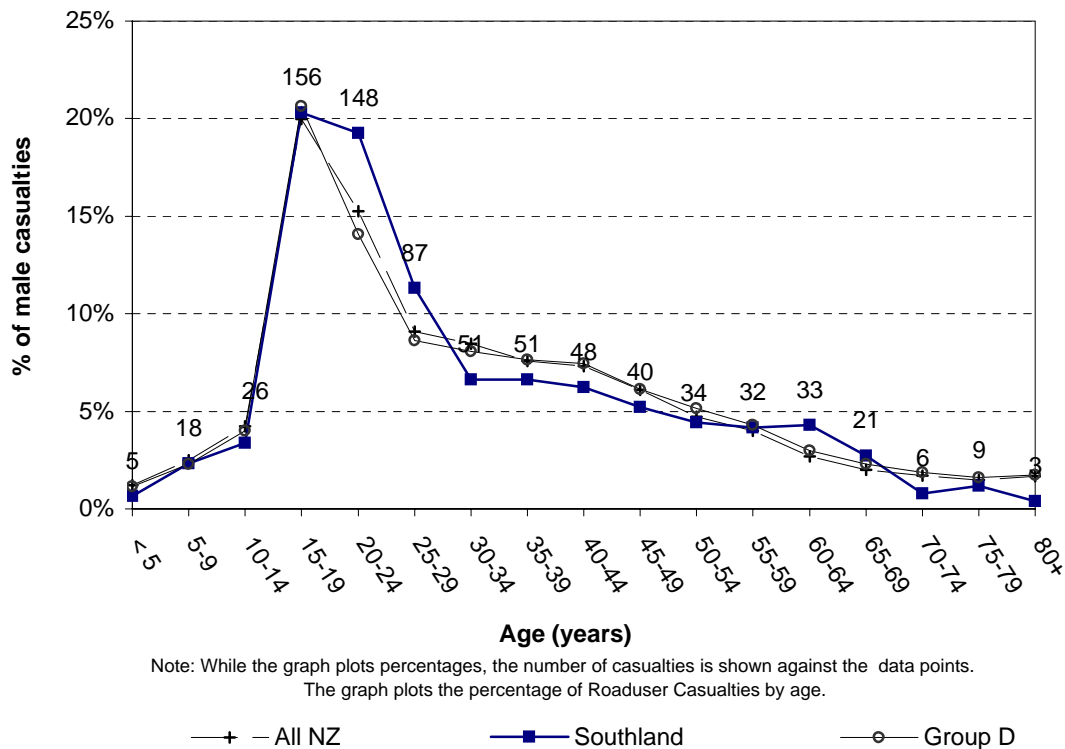


**Figure 3.4 Male/female casualties - rural
Southland District**

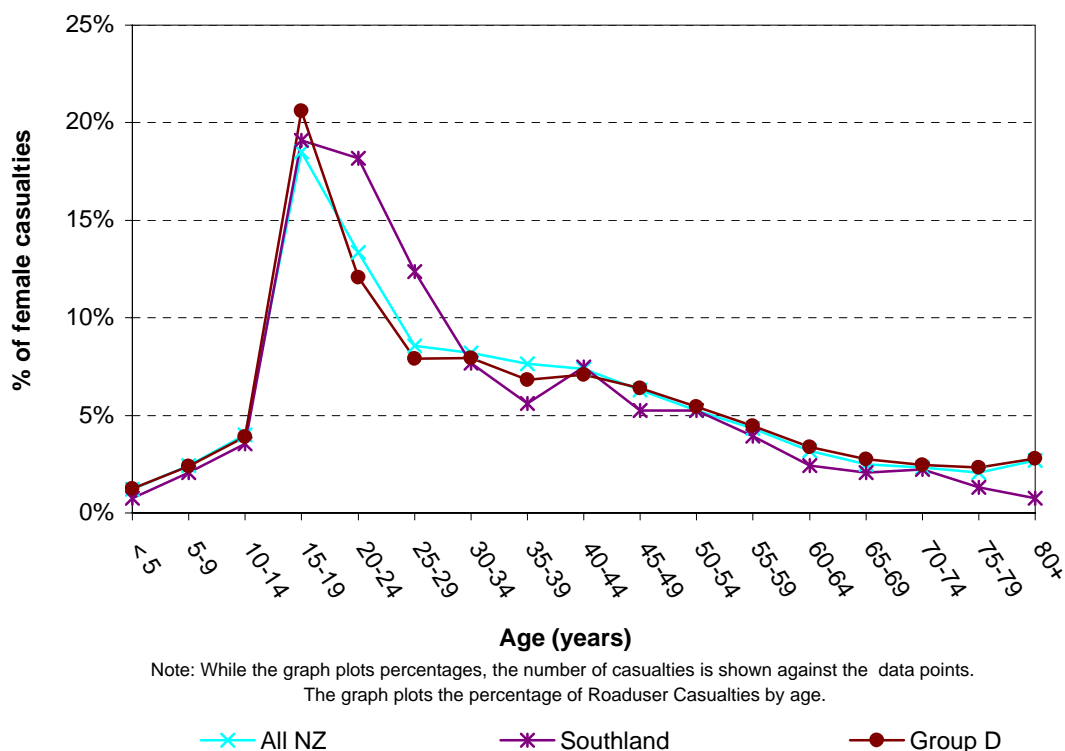




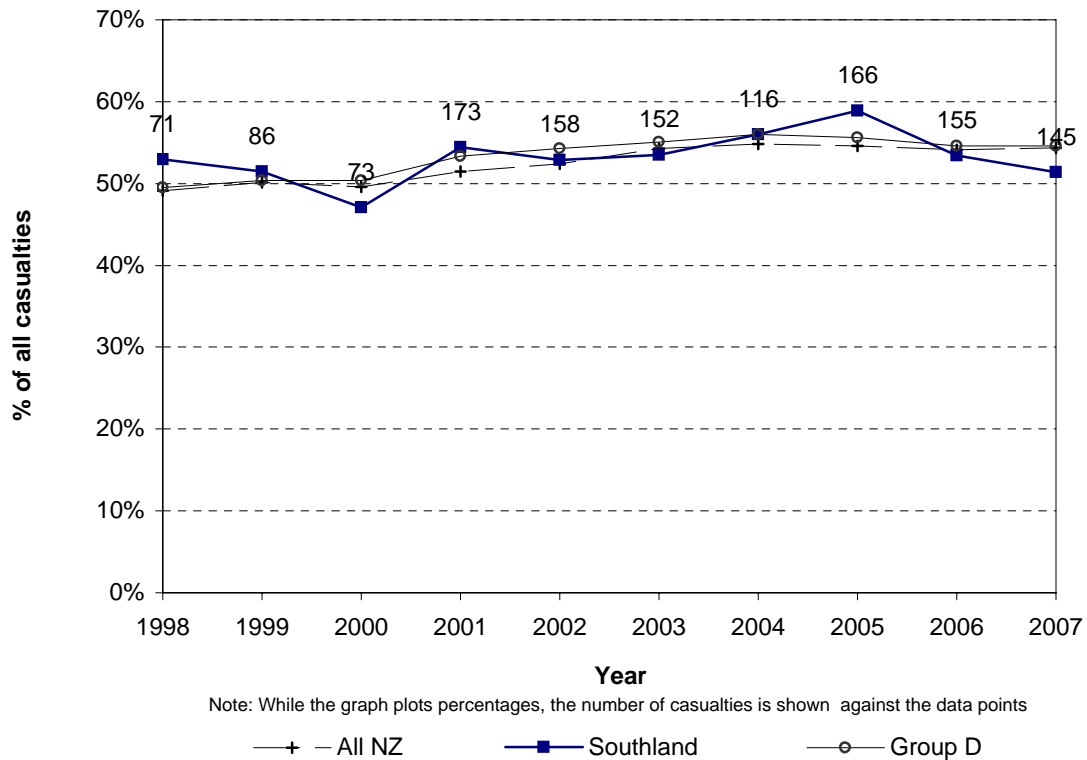
**Figure 3.5 Male casualties by age
Southland District (2003-2007)**



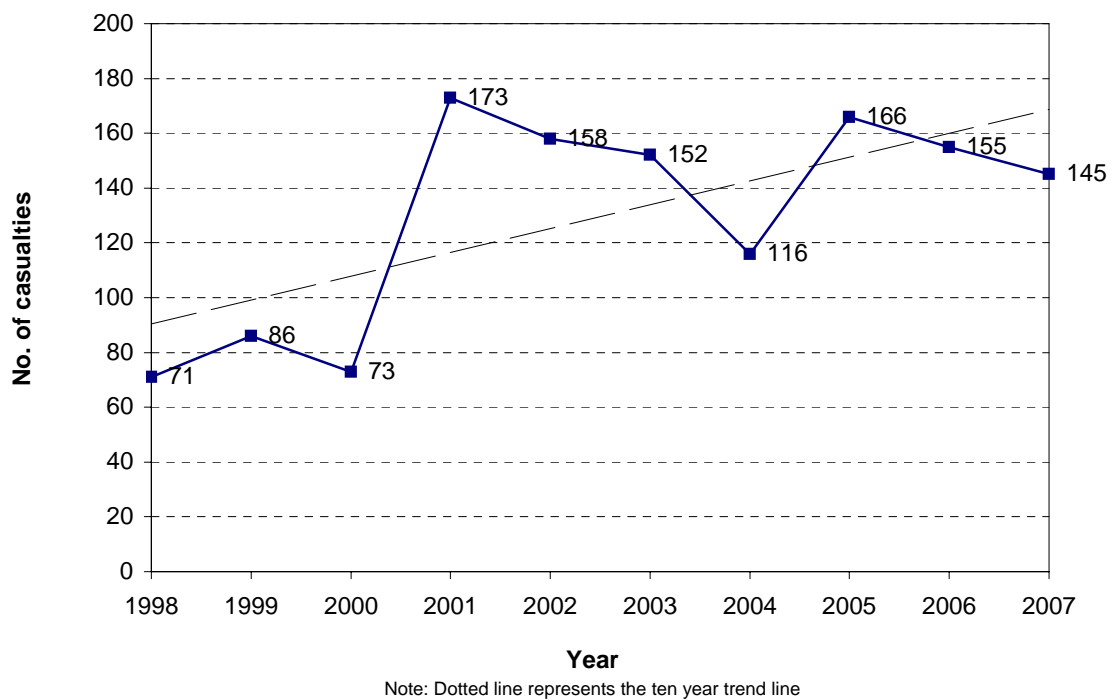
**Figure 3.6 Female casualties by age
Southland District (2003-2007)**



**Figure 3.7 Car/van driver casualties
Southland District**

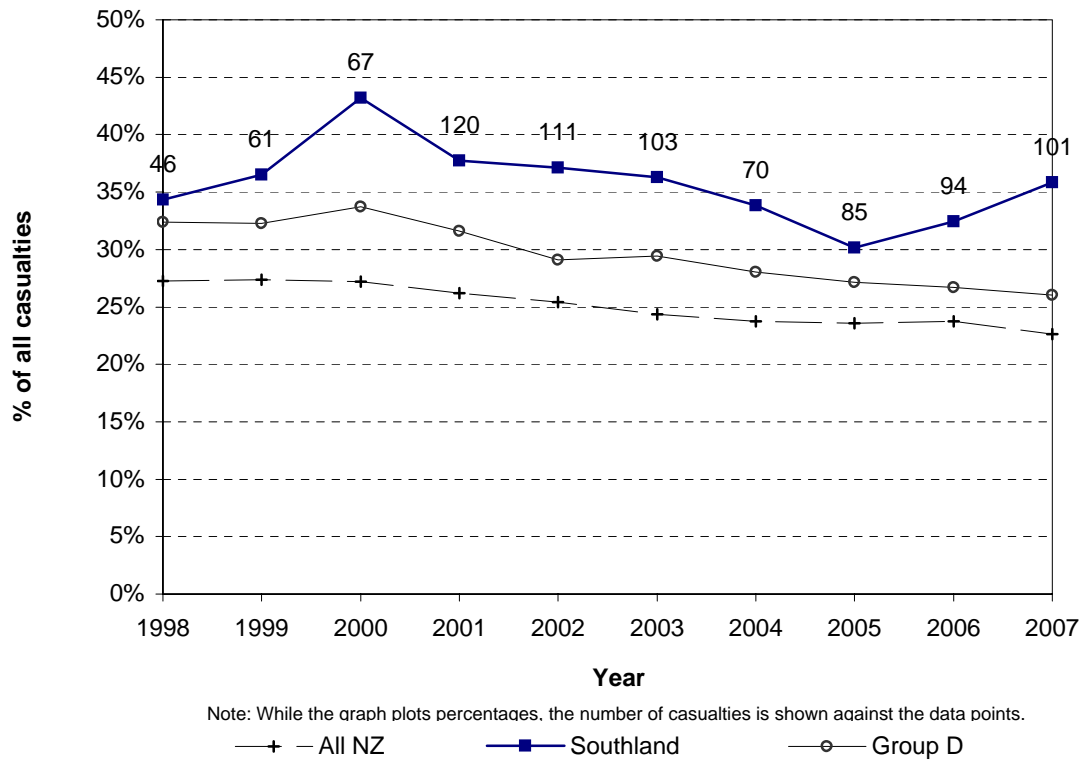


**Figure 3.8 Car/van driver casualties
Southland District**

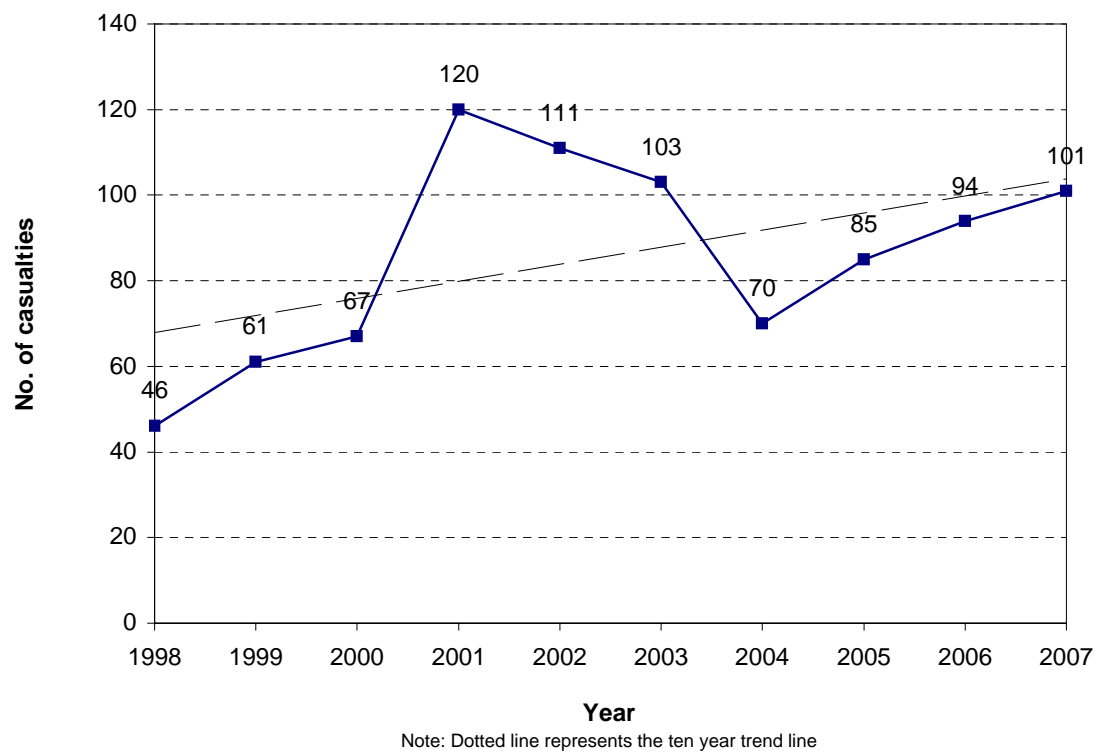




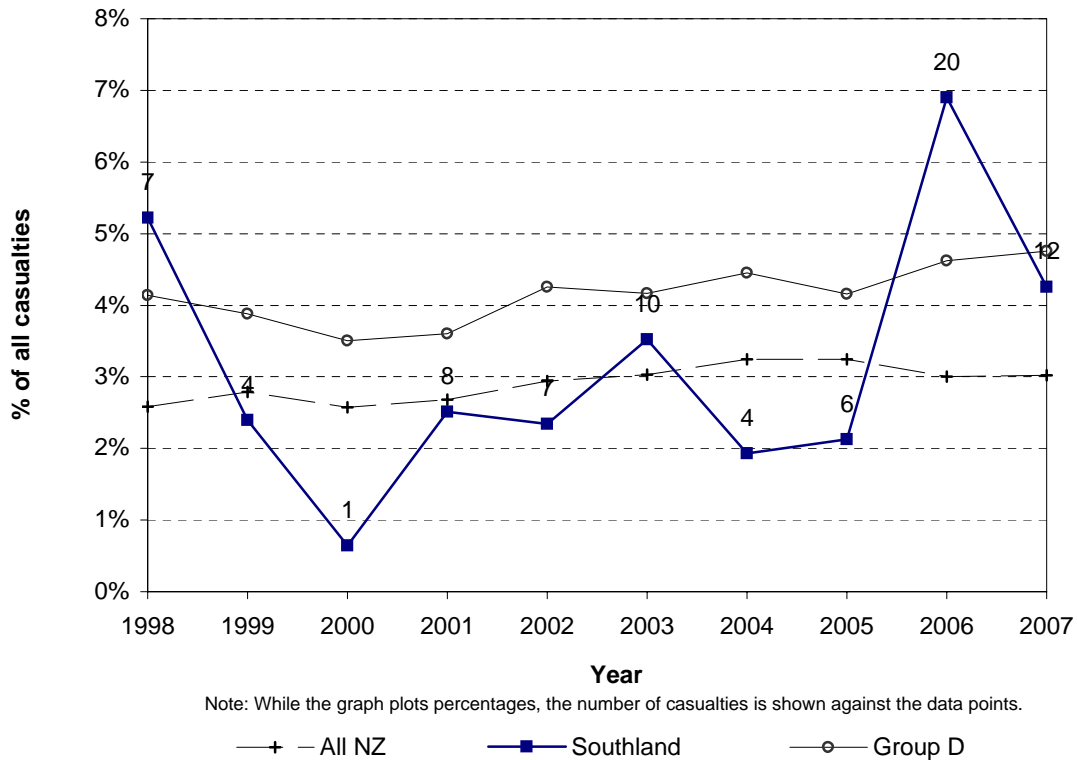
**Figure 3.9 Car/van passenger casualties
Southland District**



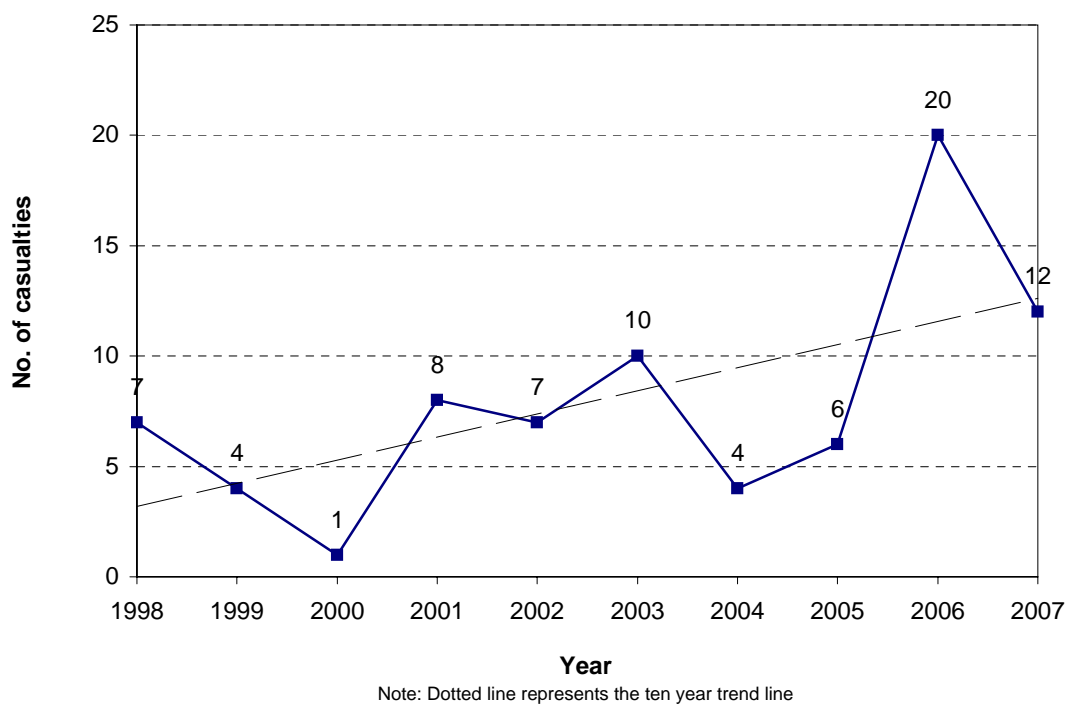
**Figure 3.10 Car/van passenger casualties
Southland District**



**Figure 3.11 Heavy vehicle casualties
Southland District**

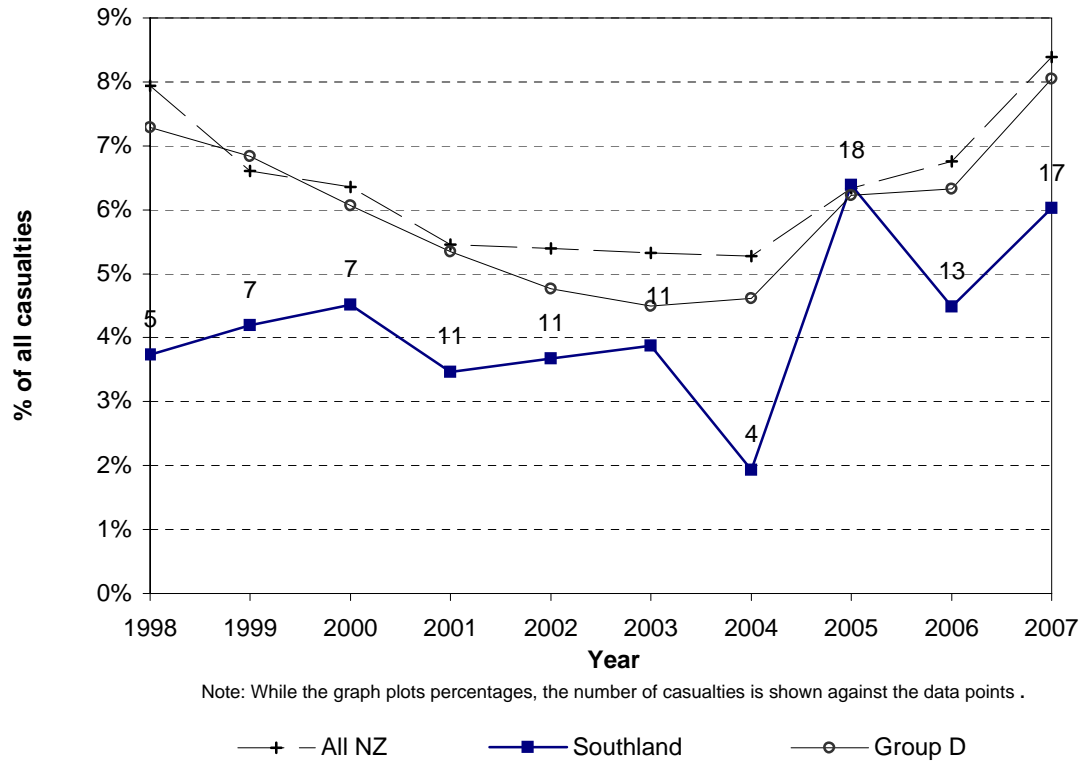


**Figure 3.12 Heavy vehicle casualties
Southland District**

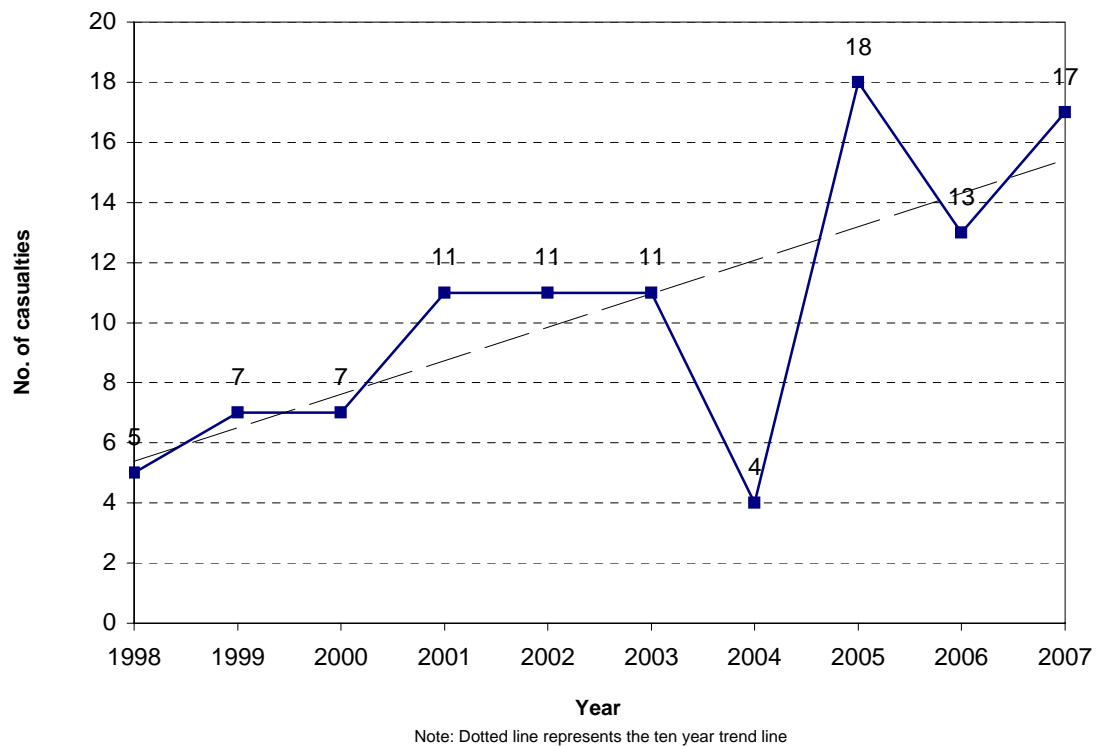




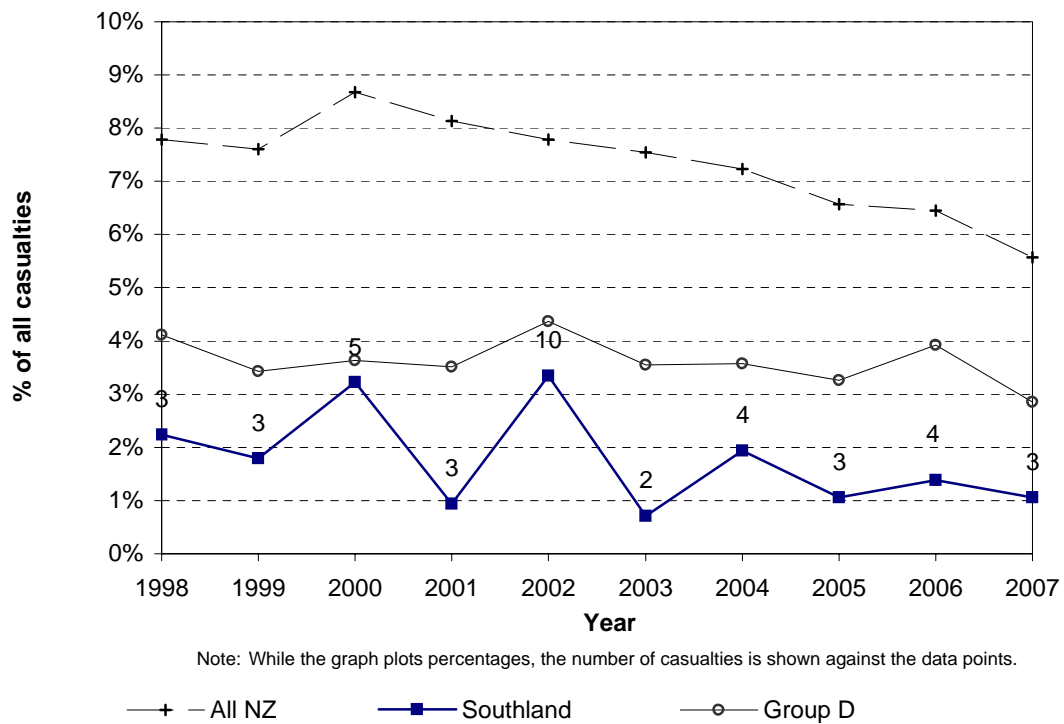
**Figure 3.13 Motorcyclist casualties
Southland District**



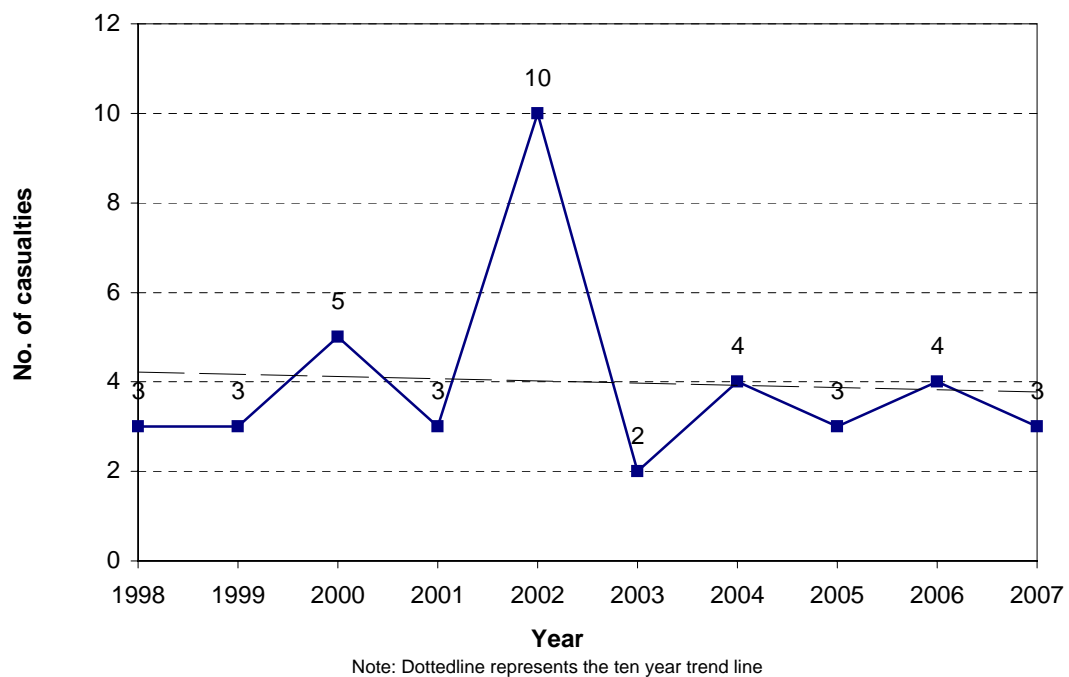
**Figure 3.14 Motorcyclist casualties
Southland District**



**Figure 3.15 Pedestrian casualties
Southland District**

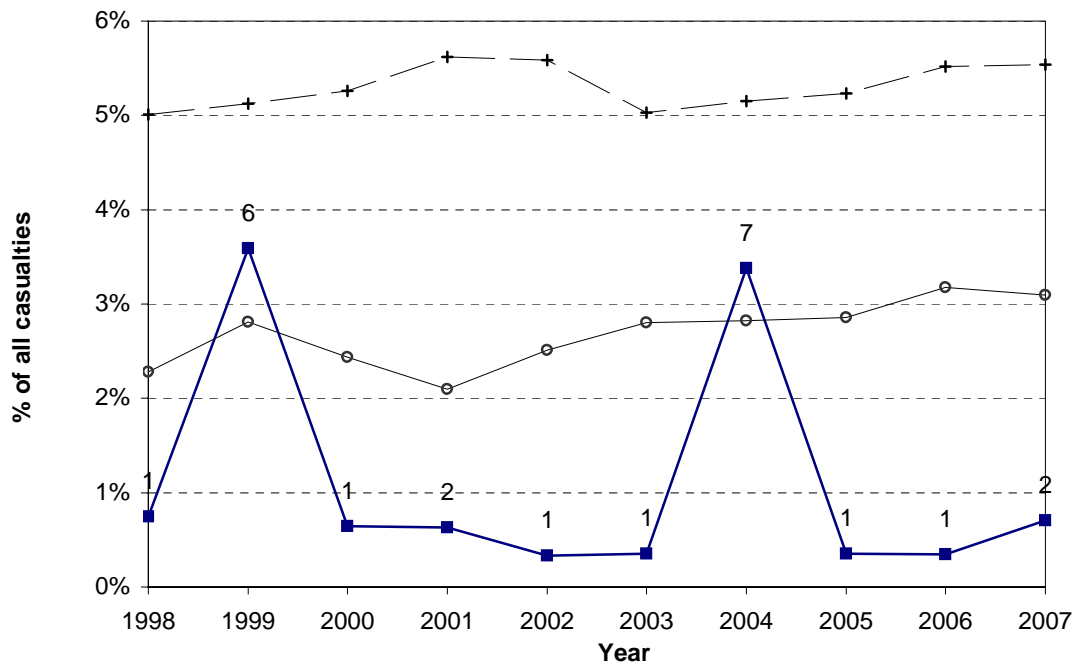


**Figure 3.16 Pedestrian casualties
Southland District**





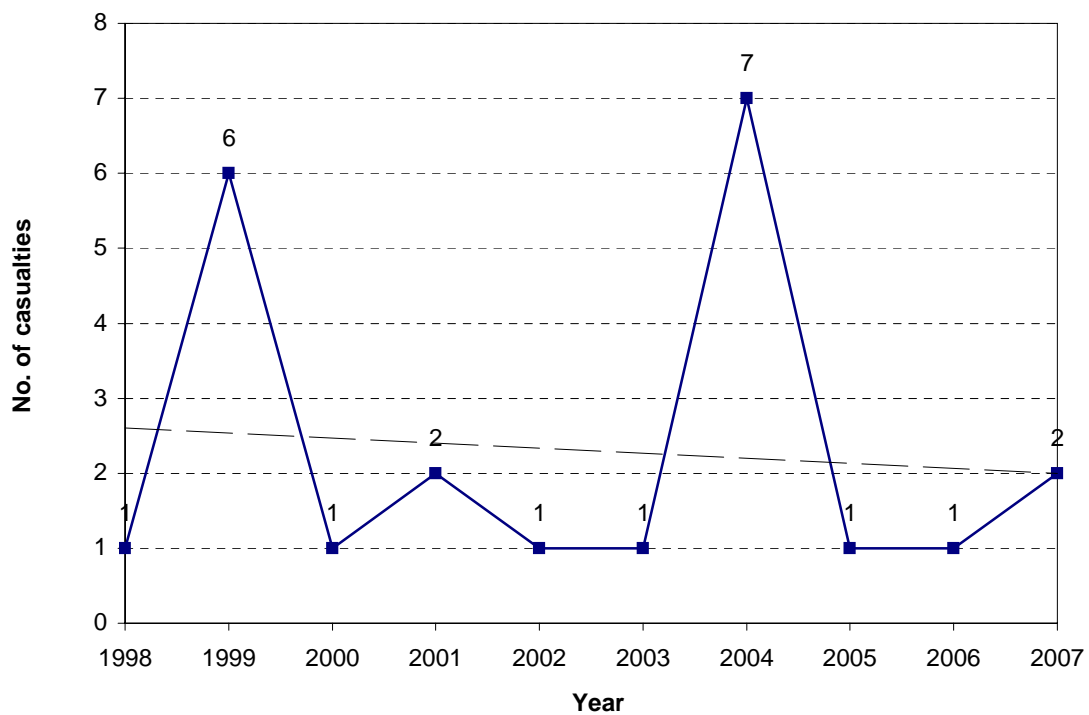
**Figure 3.17 Cyclist casualties
Southland District**



Note: While the graph plots percentages, the number of casualties is shown against the data points.

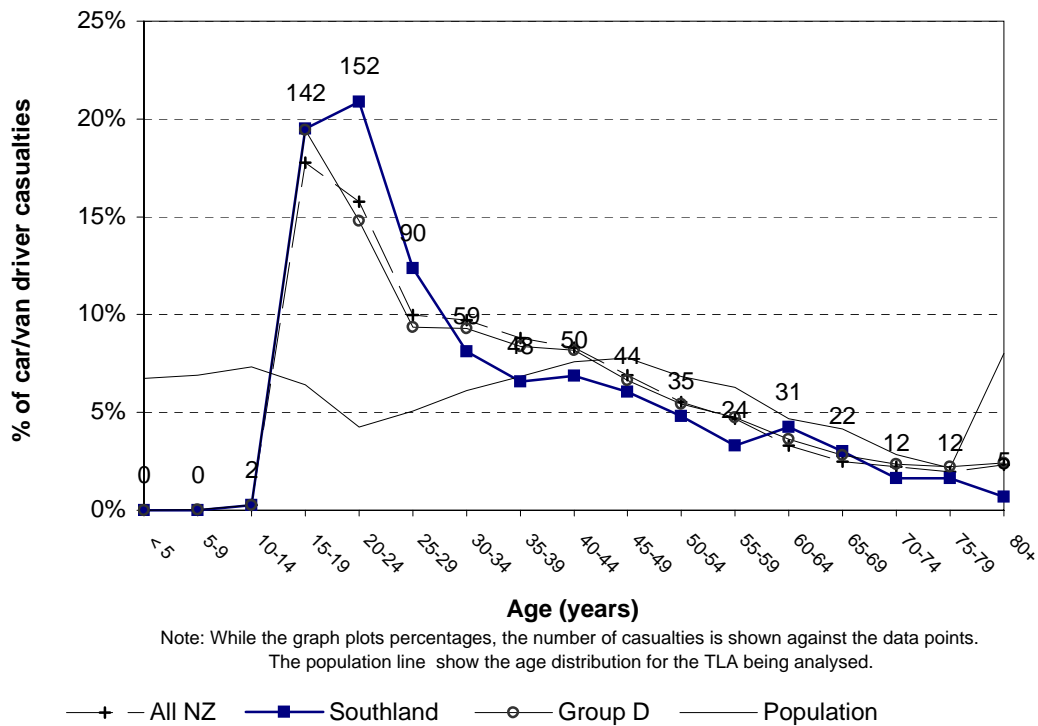
—+— All NZ —■— Southland —○— Group D

**Figure 3.18 Cyclist casualties
Southland District**

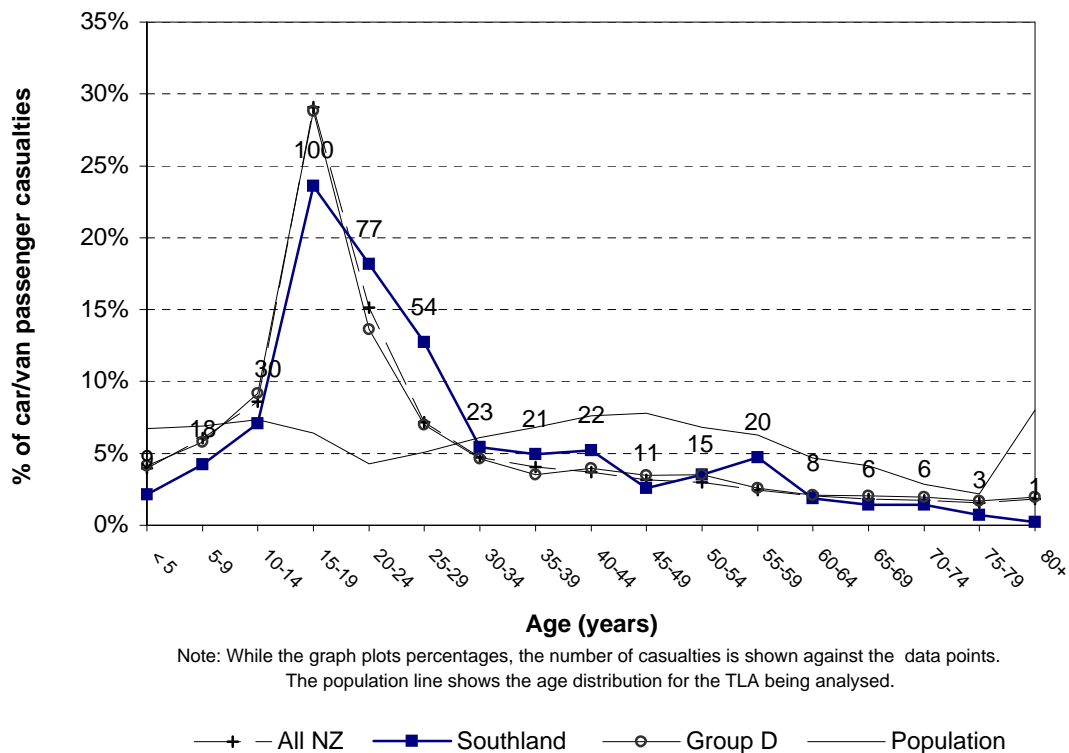


Note: Dotted line represents the ten year trend line

**Figure 3.19 Car/van driver casualty age
Southland District (2003-2007)**

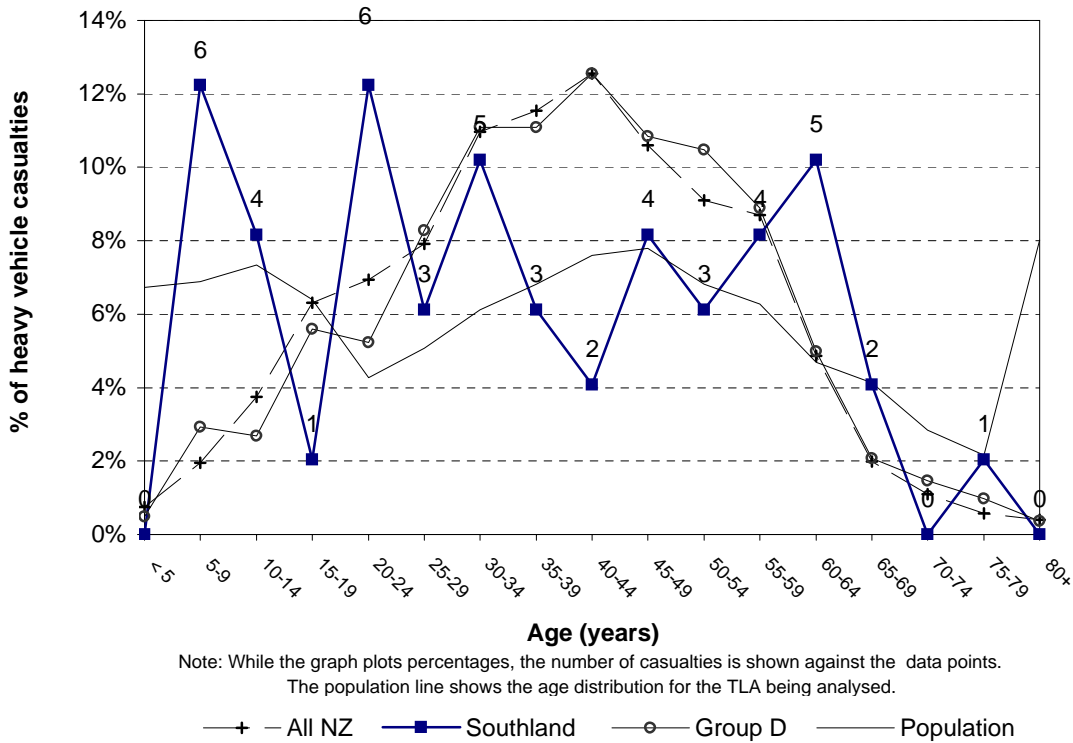


**Figure 3.20 Car/van passenger casualty age
Southland District (2003-2007)**

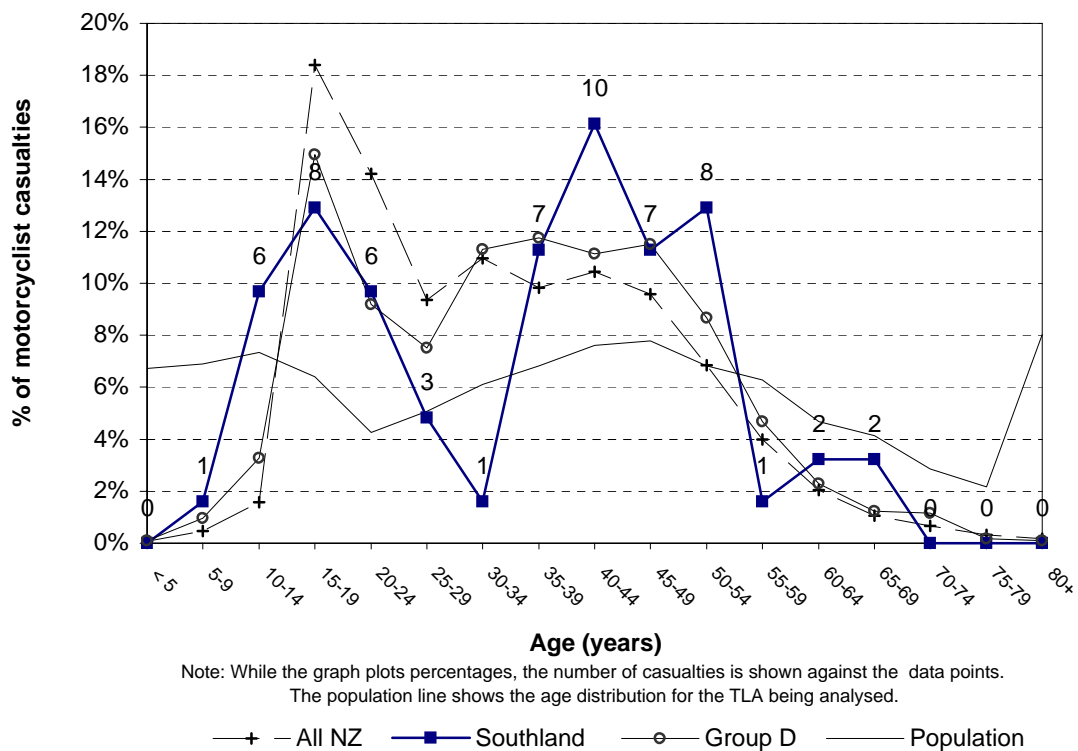




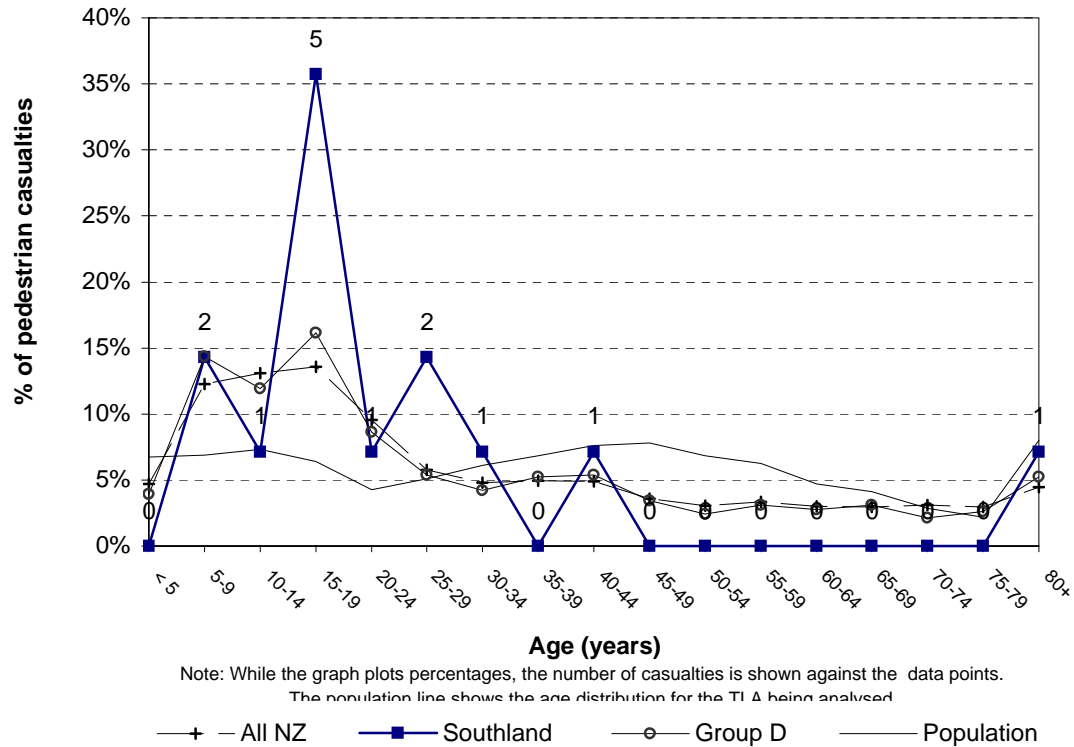
**Figure 3.21 Heavy vehicle casualty age
Southland District (2003-2007)**



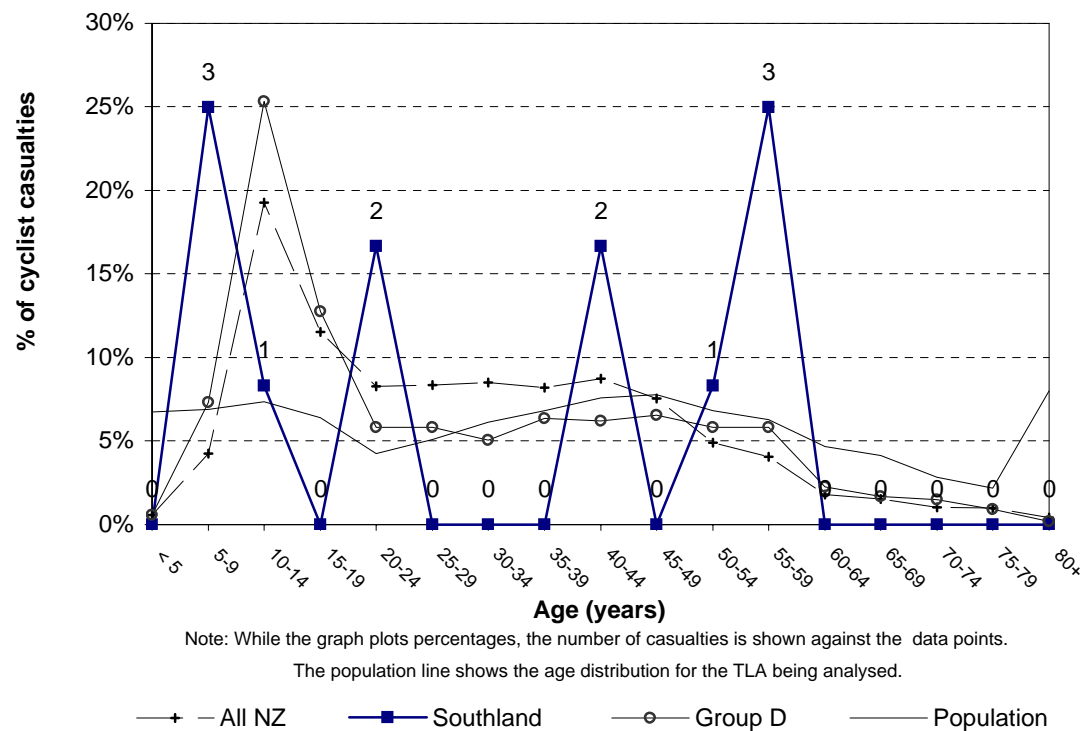
**Figure 3.22 Motorcyclist casualty age
Southland District (2003-2007)**



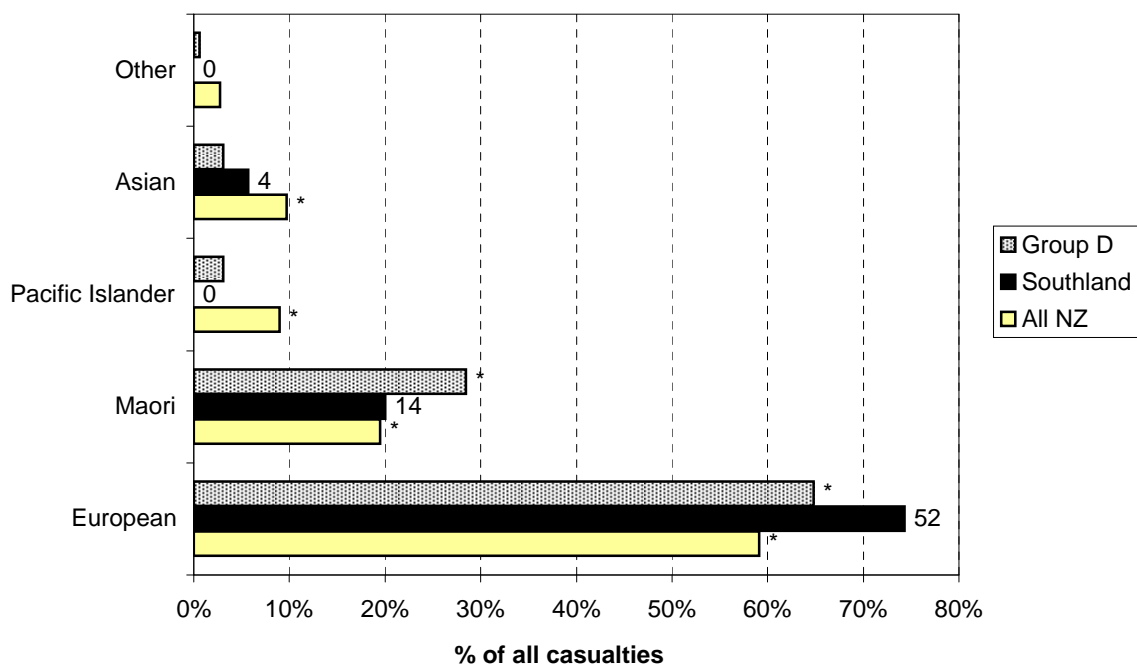
**Figure 3.23 Pedestrian casualty age
Southland District (2003-2007)**



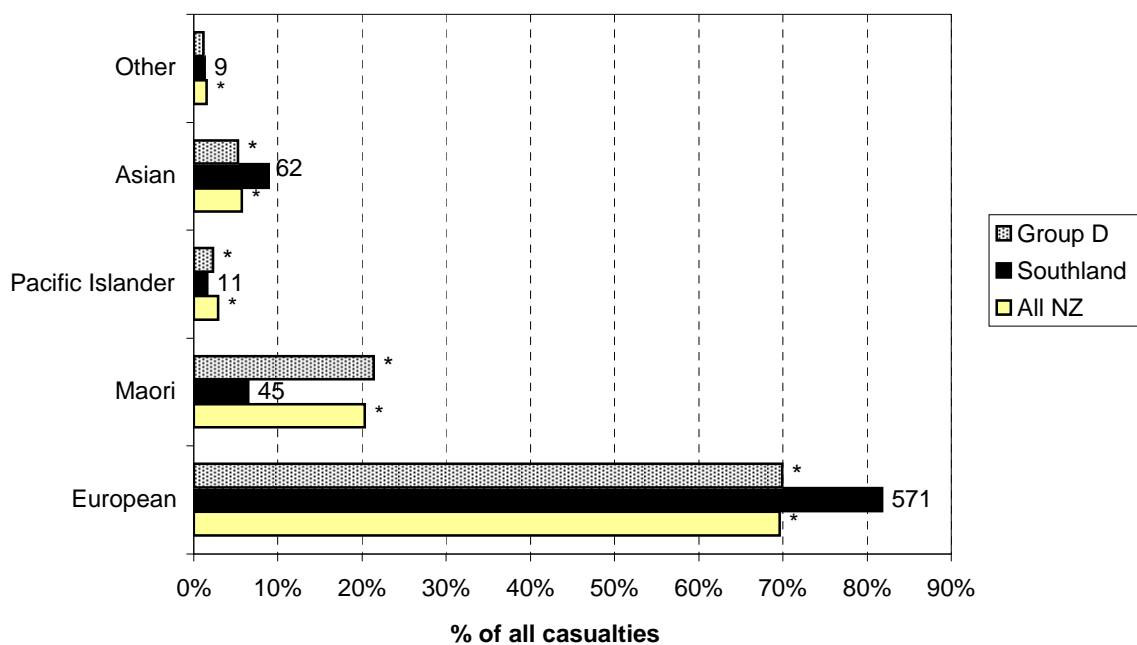
**Figure 3.24 Cyclist casualty age
Southland District (2003-2007)**



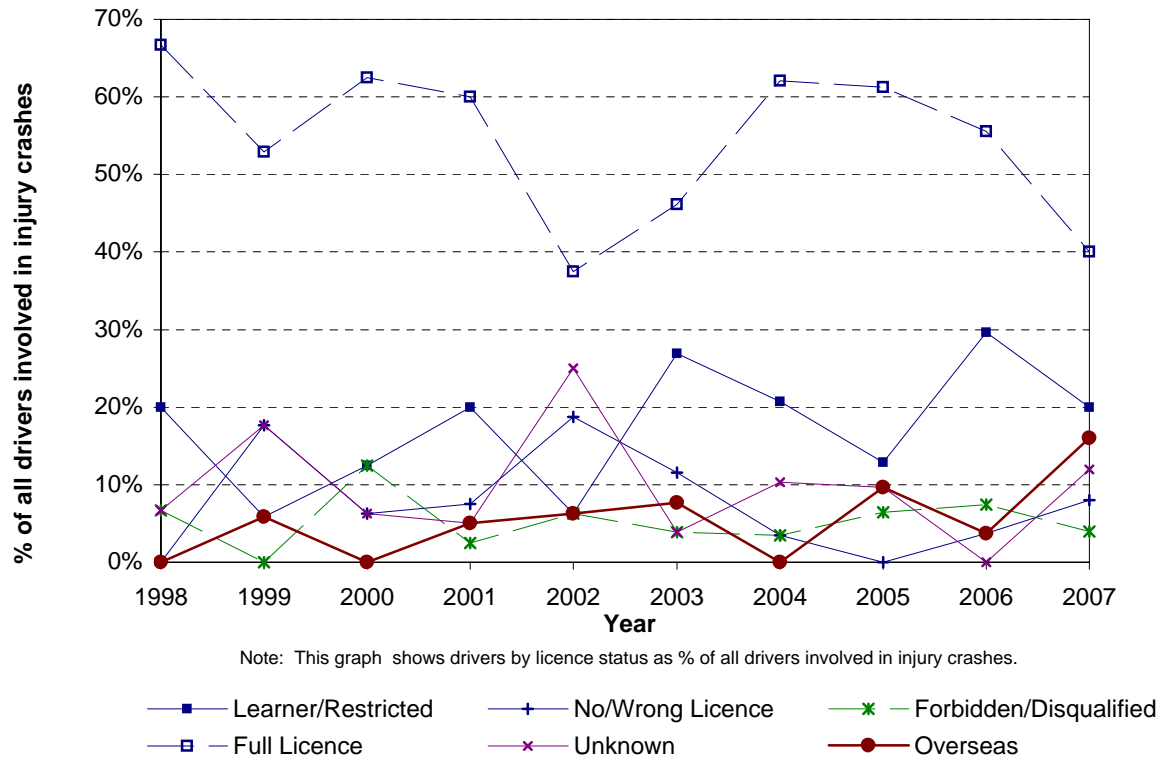
**Figure 3.25 Casualty ethnicity - urban
Southland District (2003-2007)**



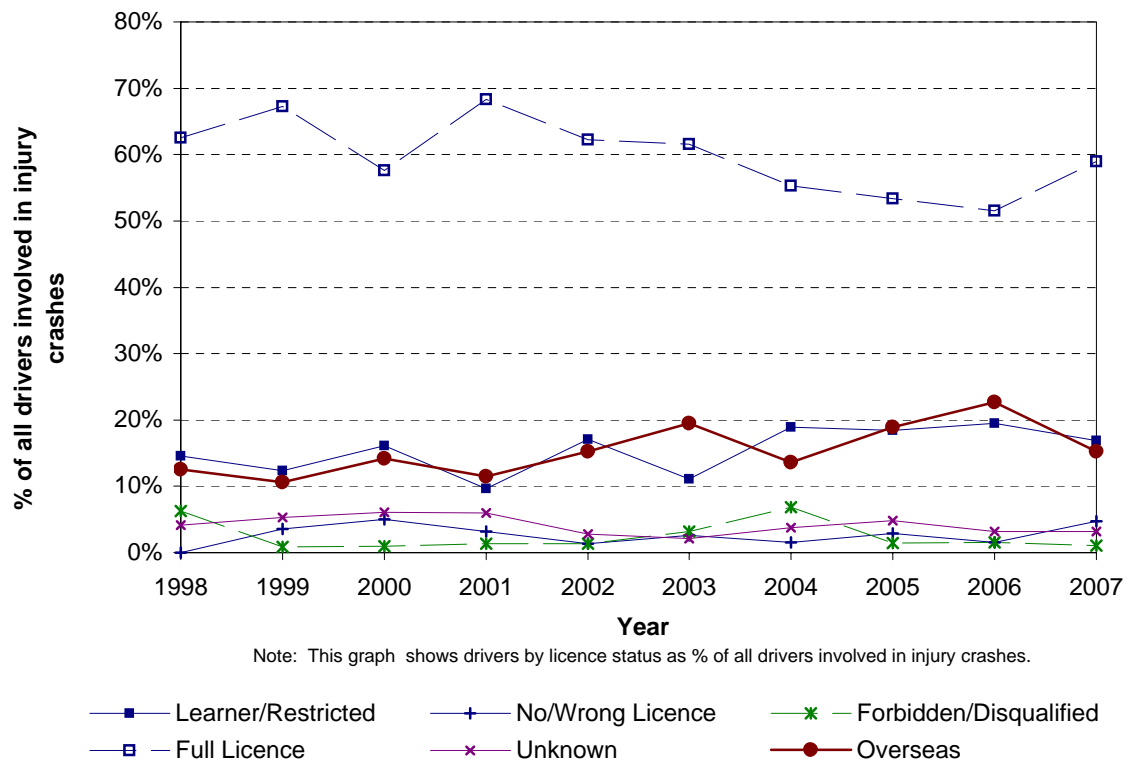
**Figure 3.26 Casualty ethnicity - rural
Southland District (2003-2007)**



**Figure 3.27 Licence status - urban
Southland District**

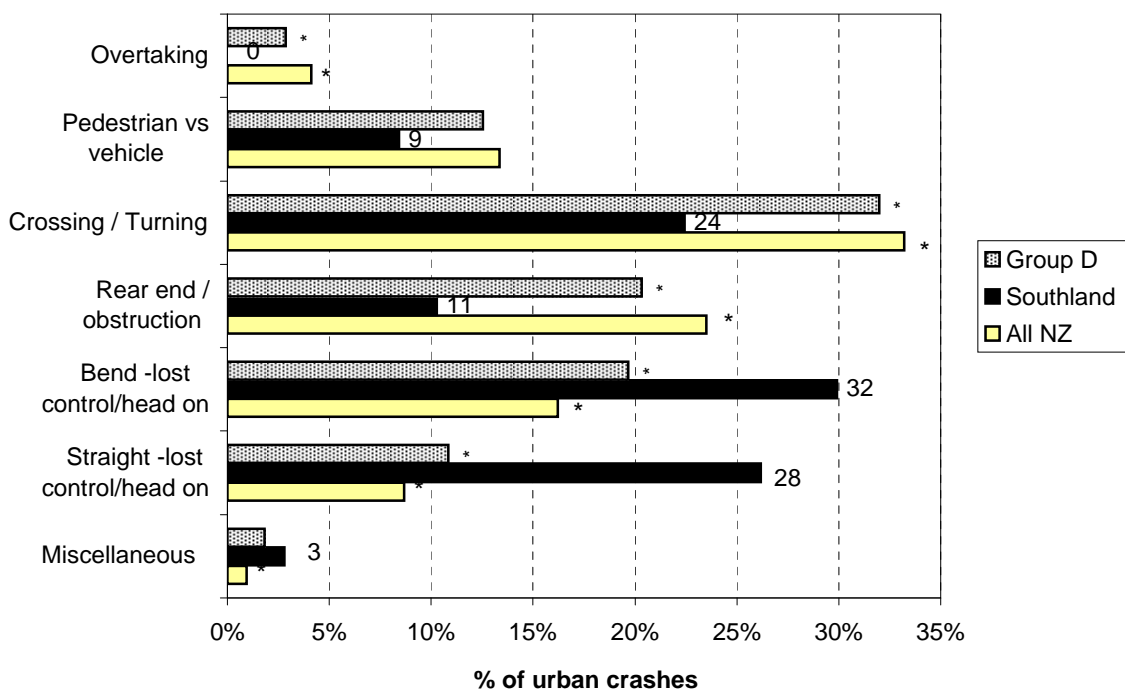


**Figure 3.28 Licence status - rural
Southland District**



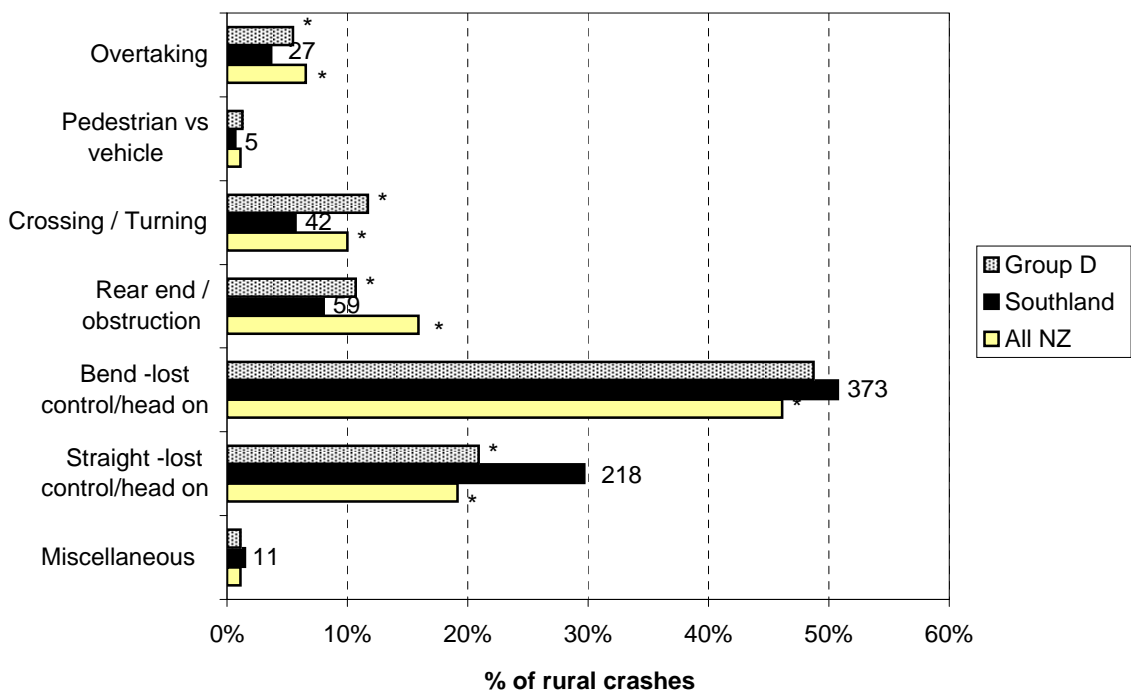
Crash type statistics

**Figure 4.1 Crash movement type - urban
Southland District (2003-2007)**



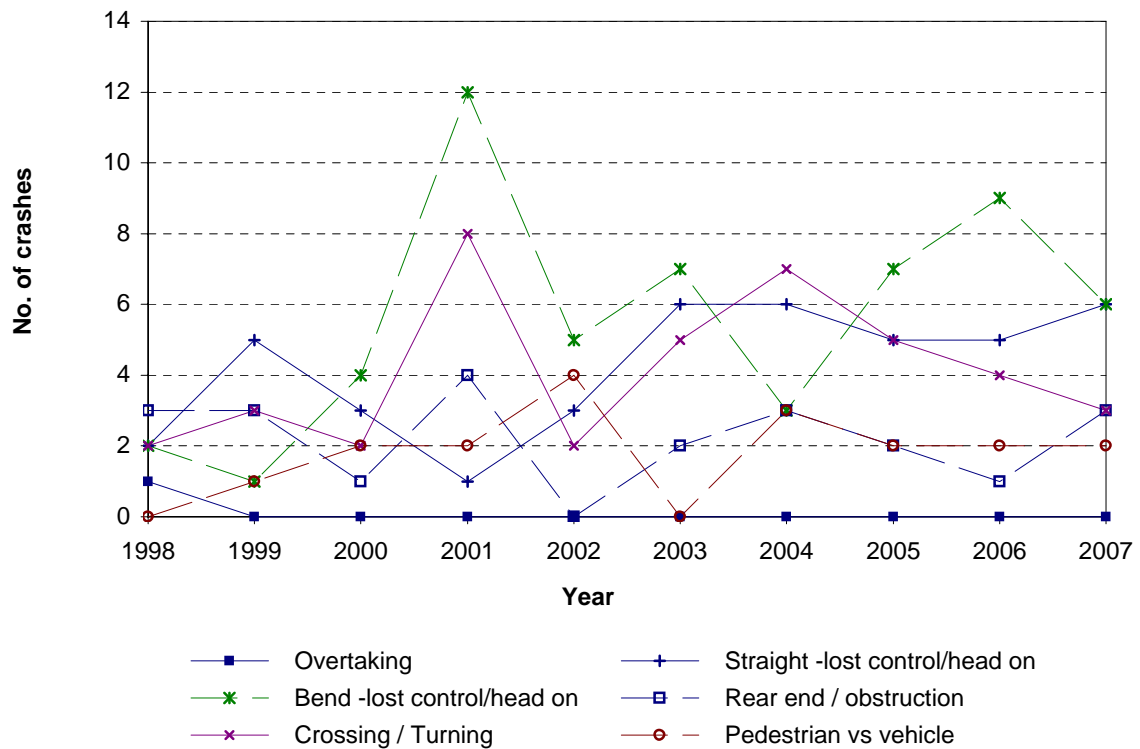
Note: While the graph plots percentages, the number of crashes is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

**Figure 4.2 Crash movement type - rural
Southland District roads (2003-2007)**

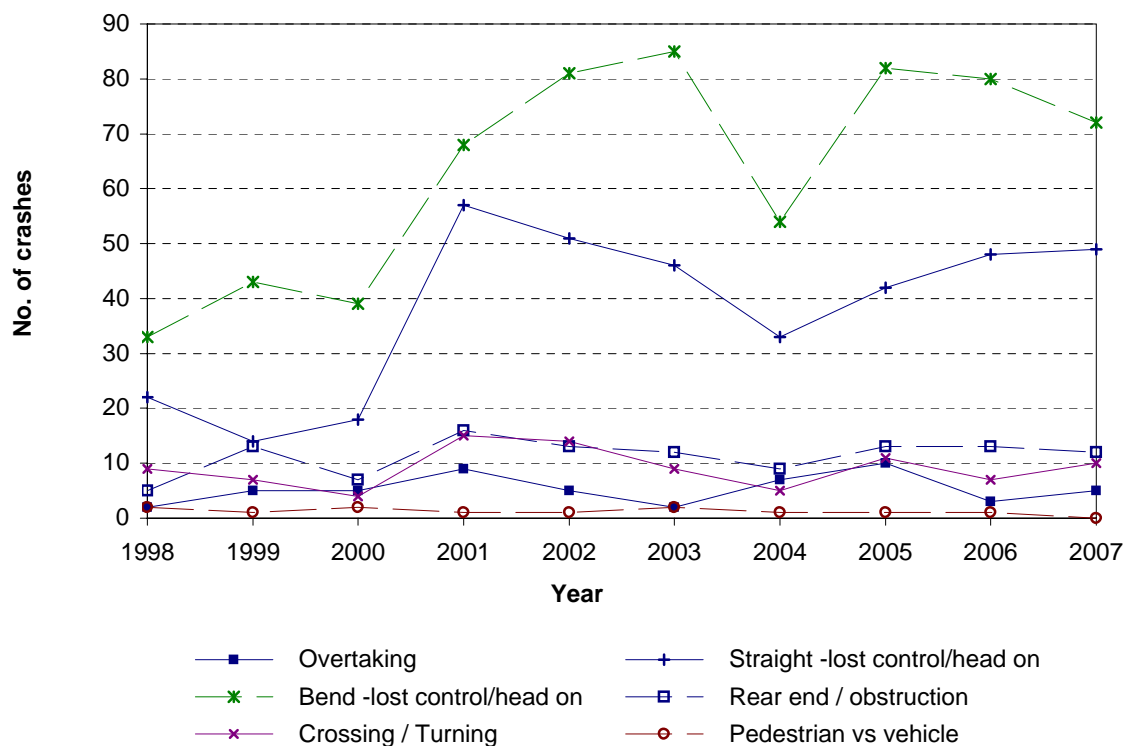


Note: While the graph plots percentages, the number of crashes is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

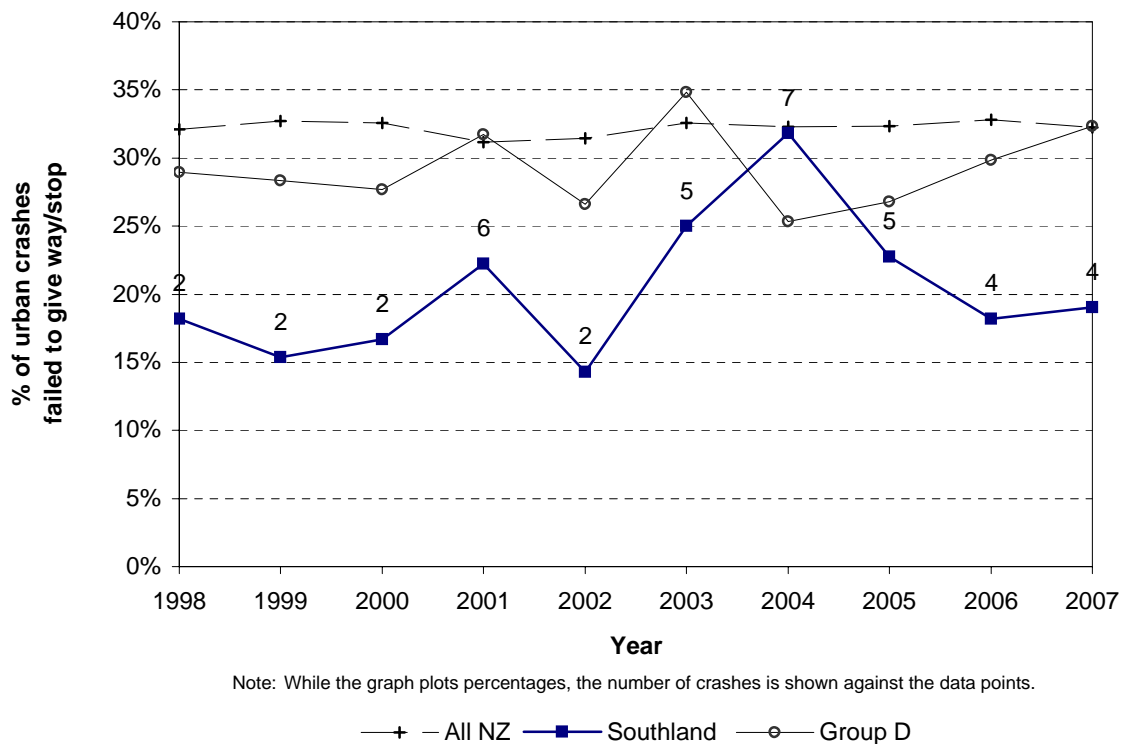
**Figure 4.3 Crash movement type - trends
Southland District - urban roads**



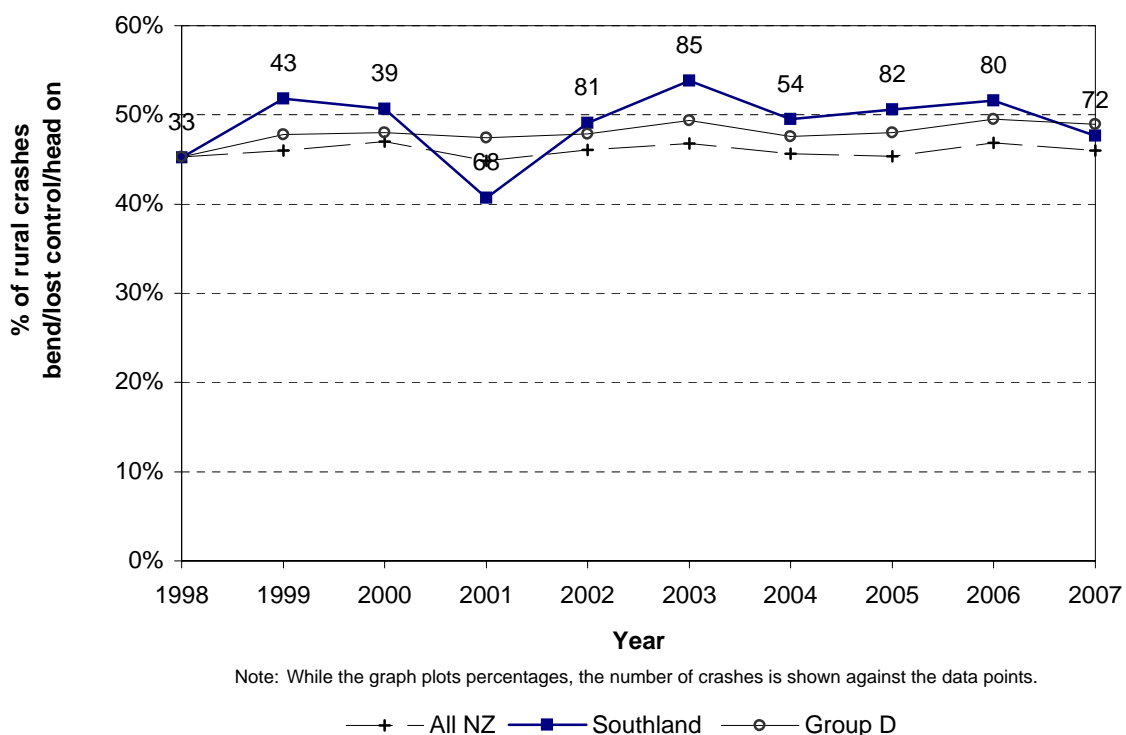
**Figure 4.4 Crash movement type - trends
Southland District - rural roads**



**Figure 4.5 Failed to give way / stop
Southland District - urban roads**

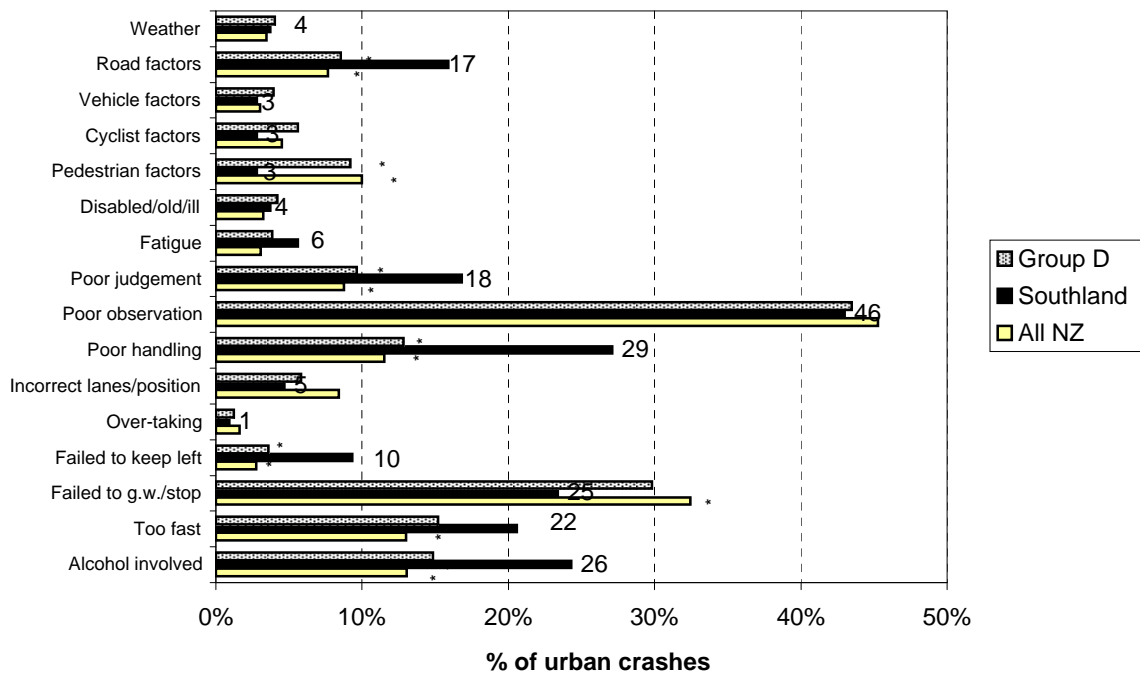


**Figure 4.6 Bend - lost control / head - on
Southland District - rural roads**



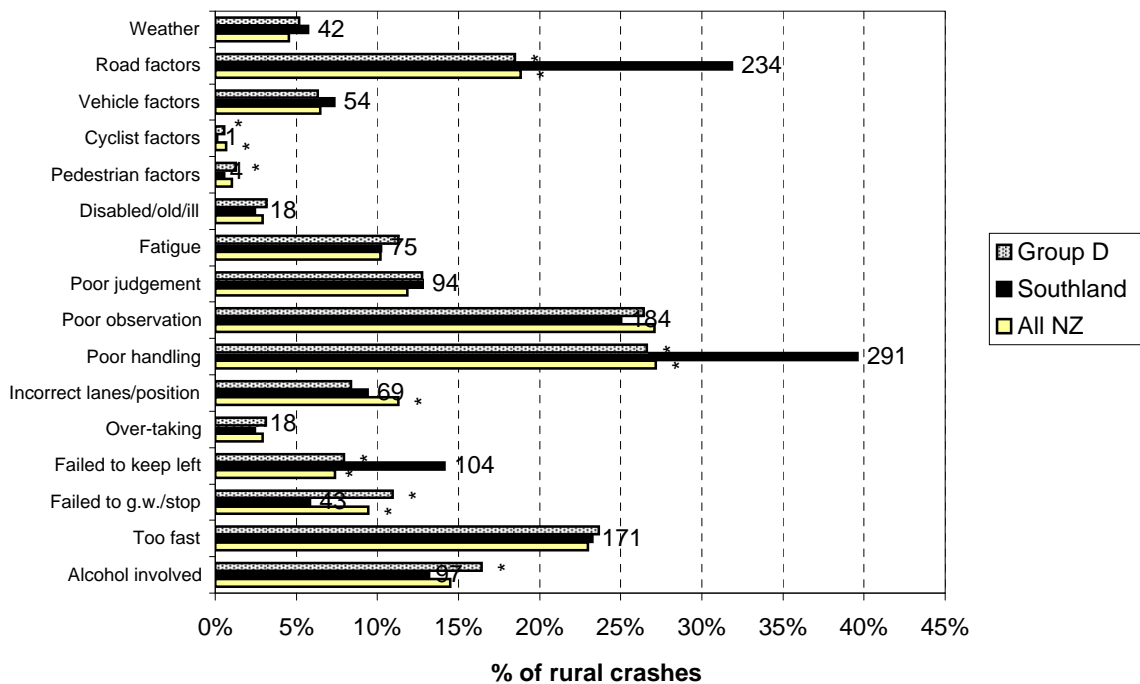
Crash factor statistics

**Figure 5.1 Contributing factors - urban
Southland District (2003-2007)**



Note: While the graph plots percentages, the number of crashes is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

**Figure 5.2 Contributing factors - rural
Southland District (2003-2007)**

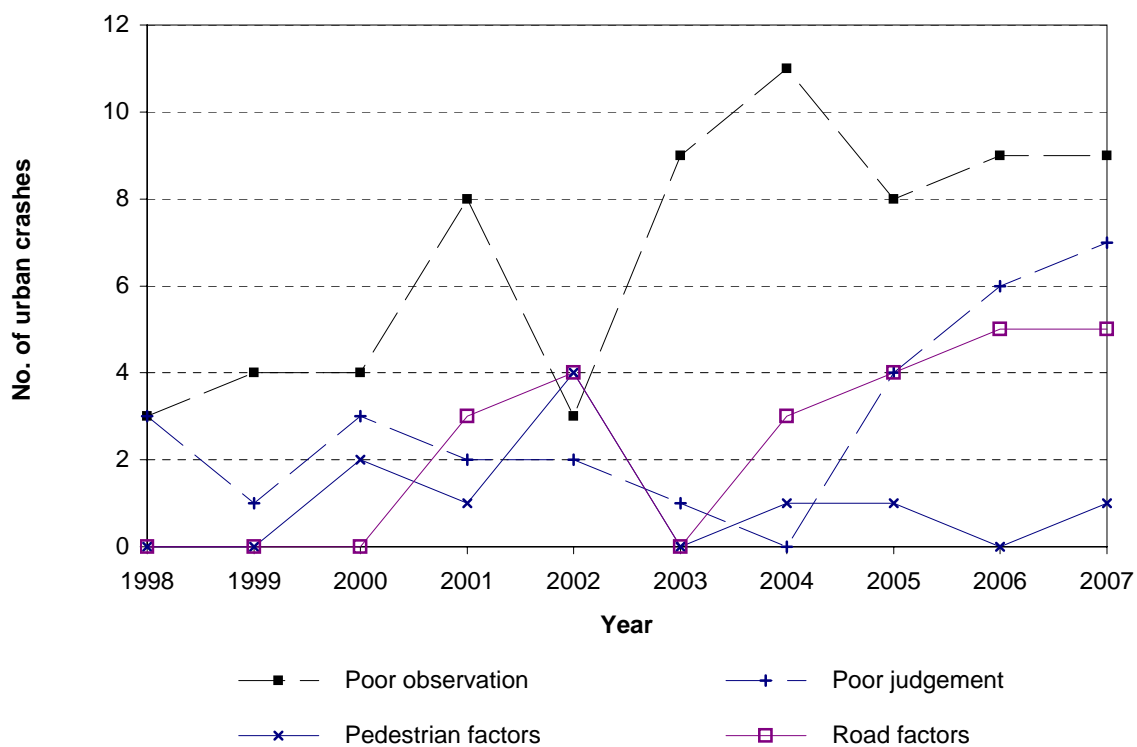


Note: While the graph plots percentages, the number of casualties is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

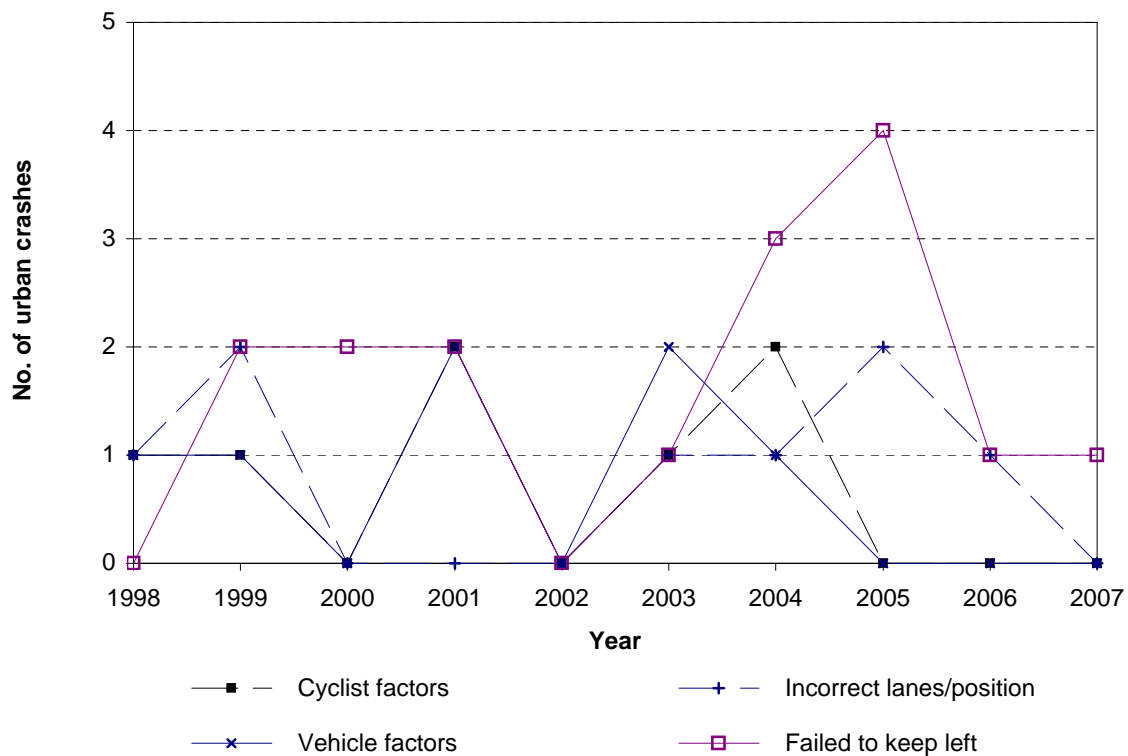
**Figure 5.3 Contributing factor trends
Southland District - urban roads**



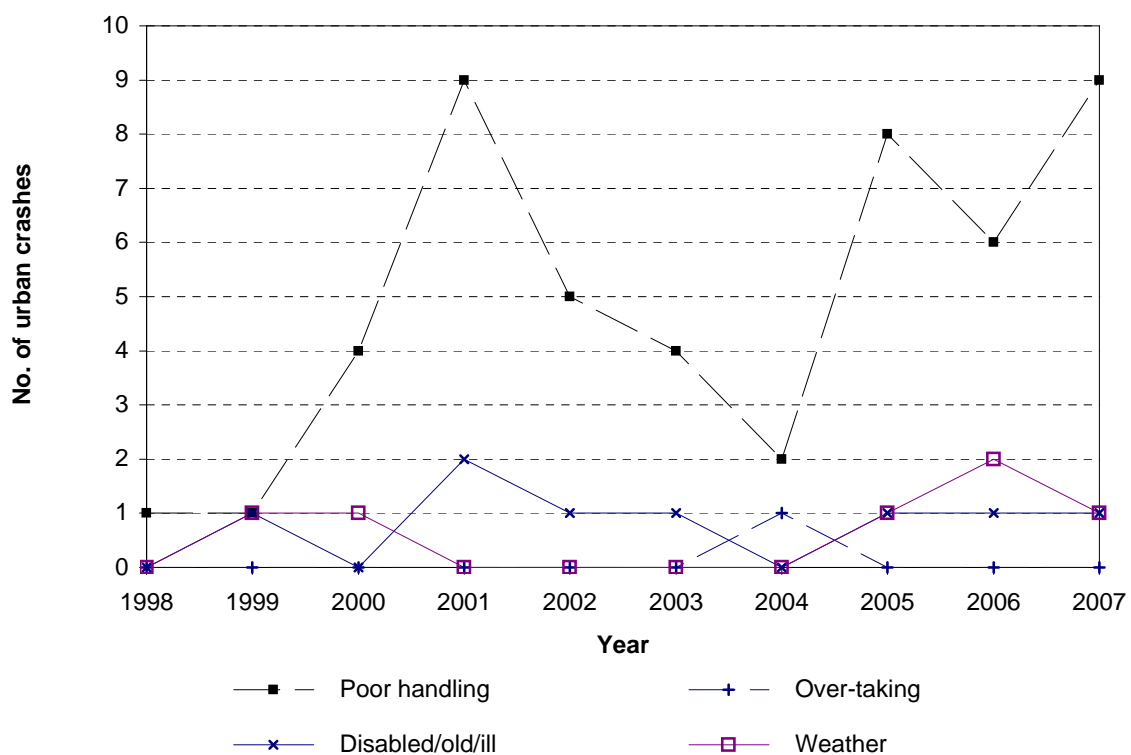
**Figure 5.4 Contributing factor trends
Southland District - urban roads**



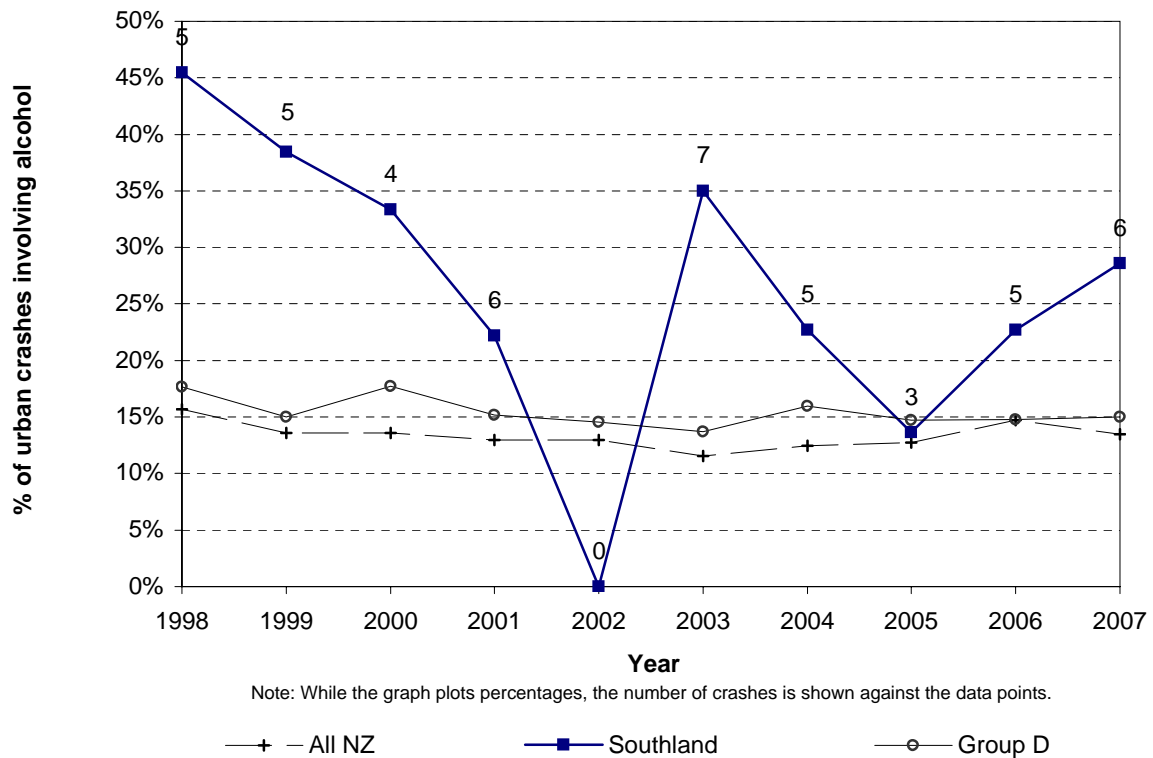
**Figure 5.5 Contributing factor trends
Southland District - urban roads**



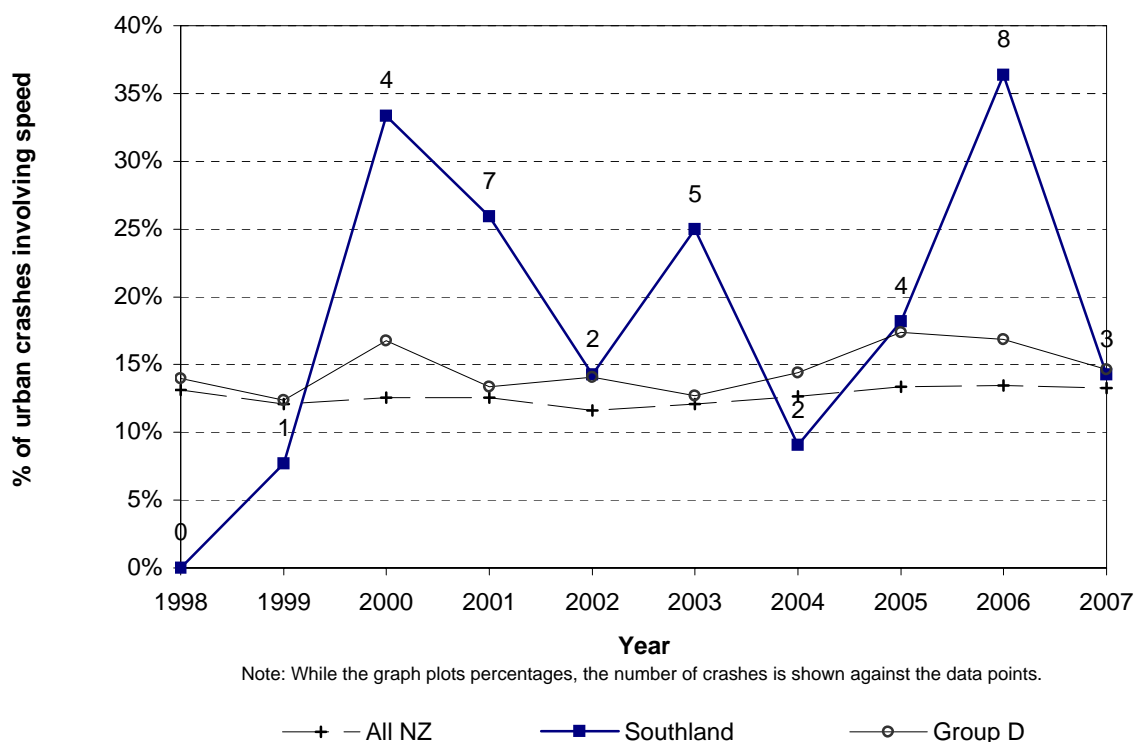
**Figure 5.6 Contributing factor trends
Southland District - urban roads**



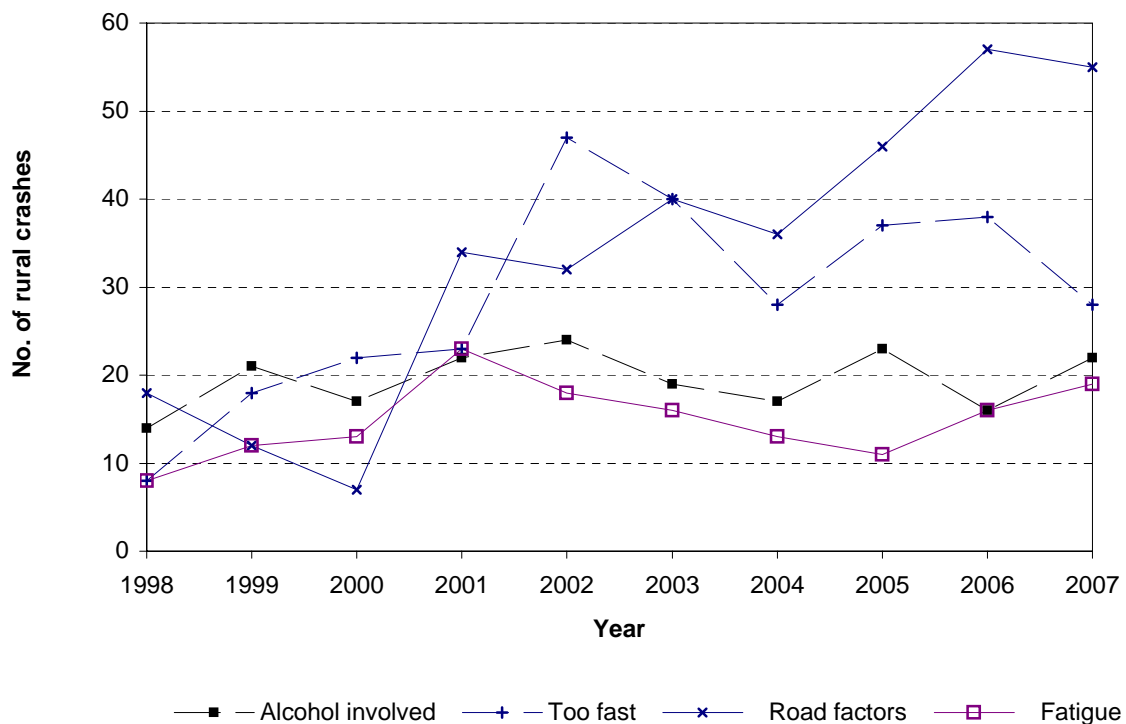
**Figure 5.7 Alcohol involved trend
Southland District - urban roads**



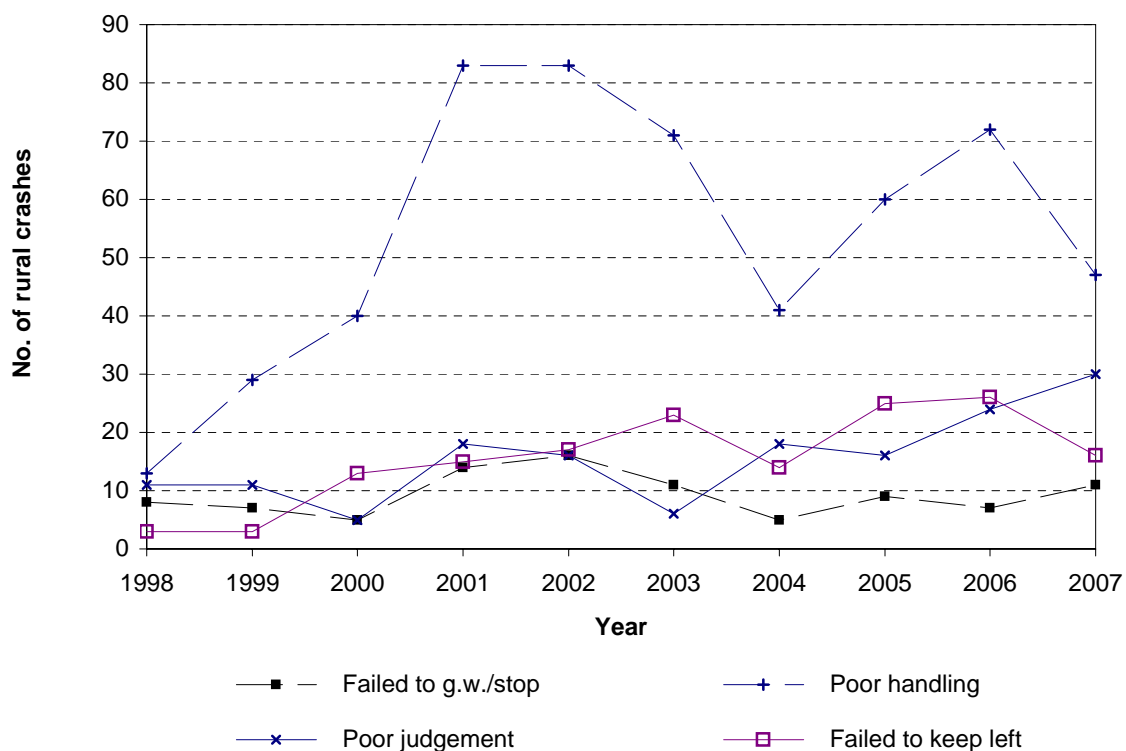
**Figure 5.8 Speed involved trend
Southland District - urban roads**



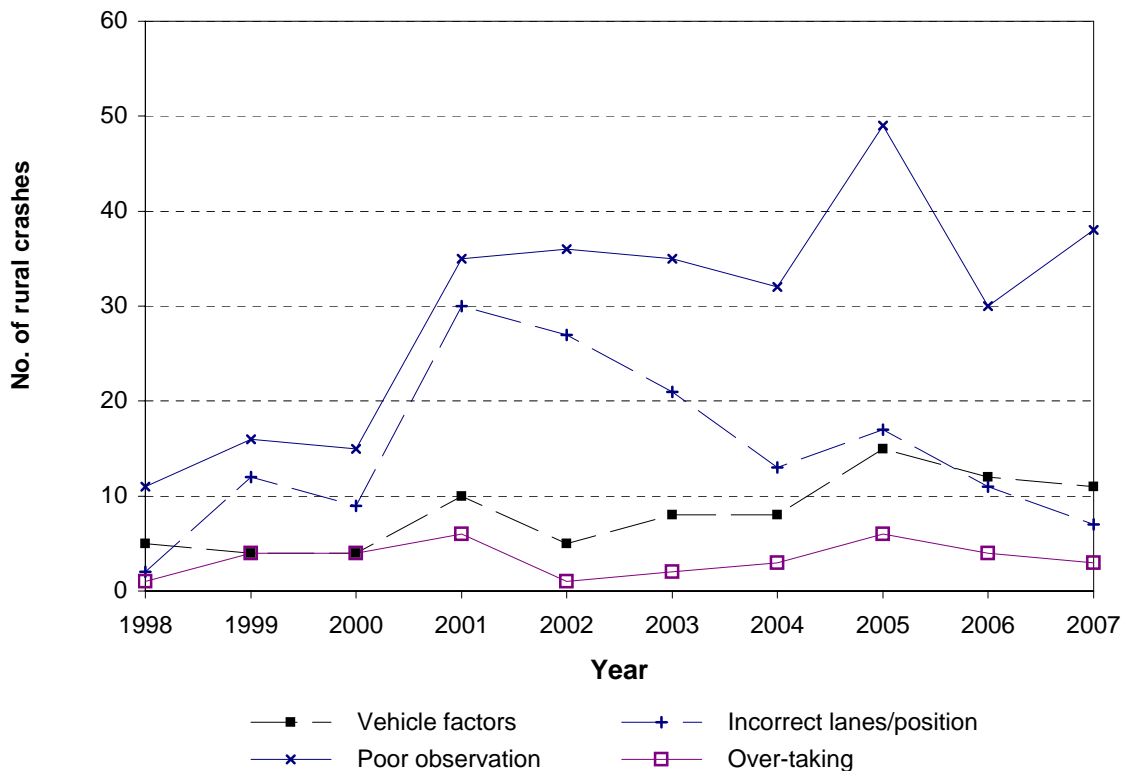
**Figure 5.9 Contributing factor trends
Southland District - rural roads**



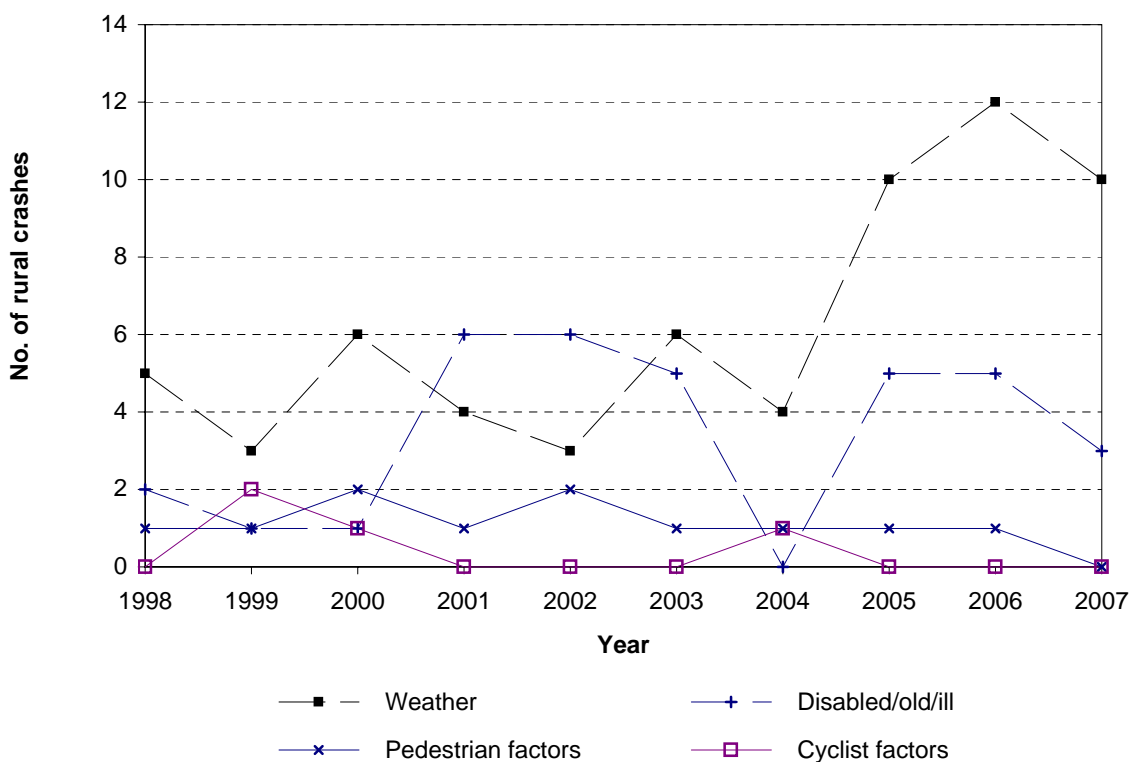
**Figure 5.10 Contributing factor trends
Southland District - rural roads**



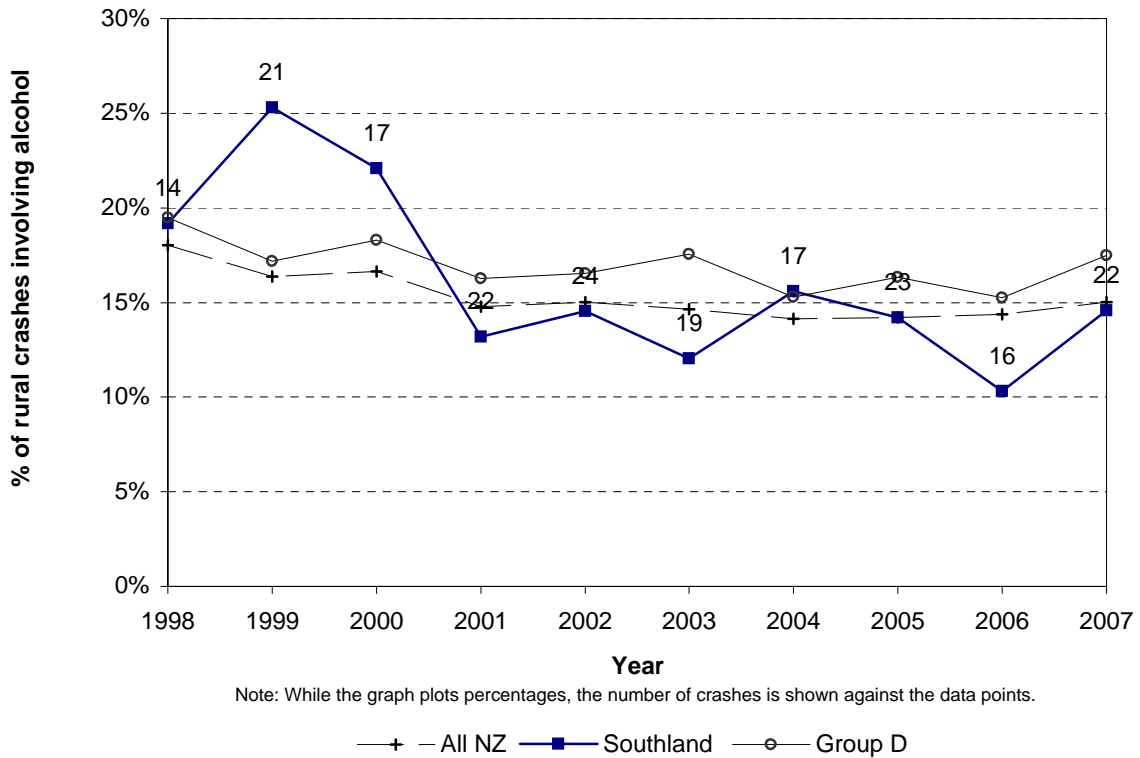
**Figure 5.11 Contributing factor trends
Southland District - rural roads**



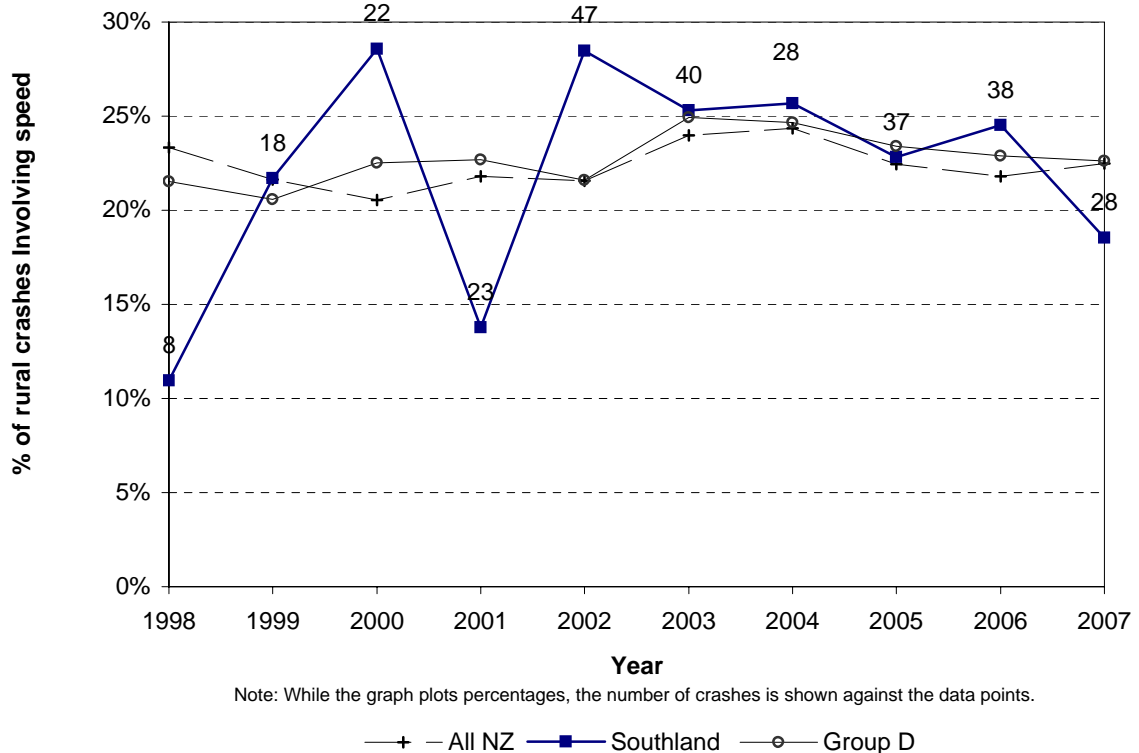
**Figure 5.12 Contributing factor trends
Southland District - rural roads**



**Figure 5.13 Alcohol involved trend
Southland District - rural roads**

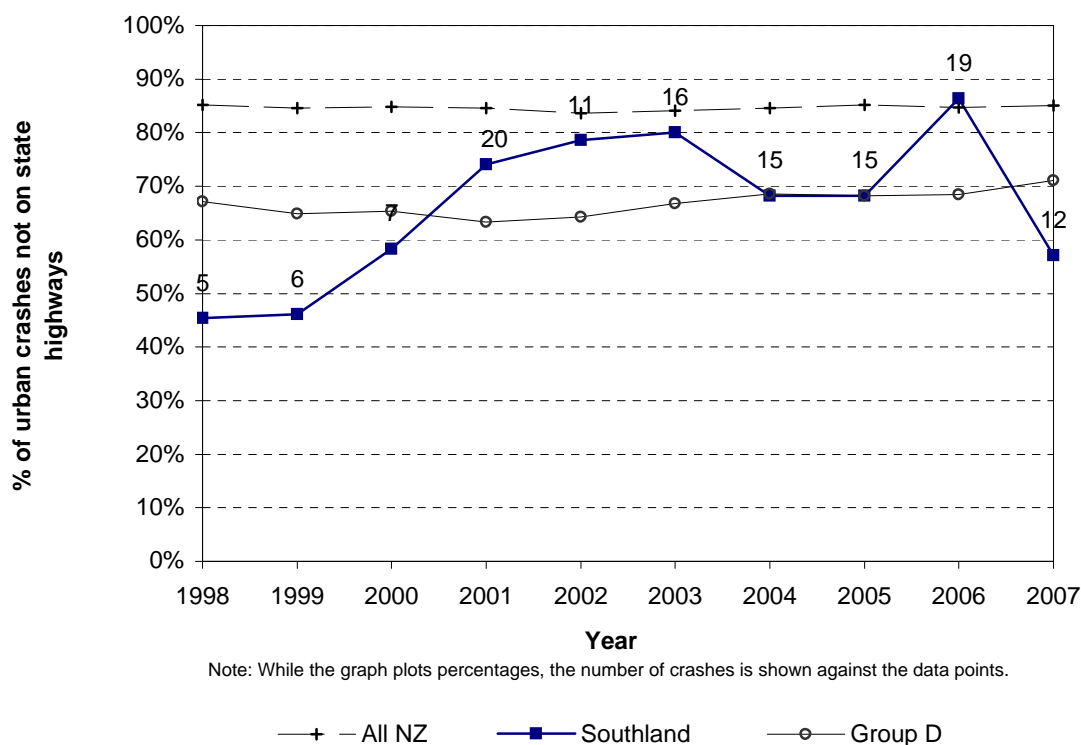


**Figure 5.14 Speed involved trend
Southland District - rural roads**

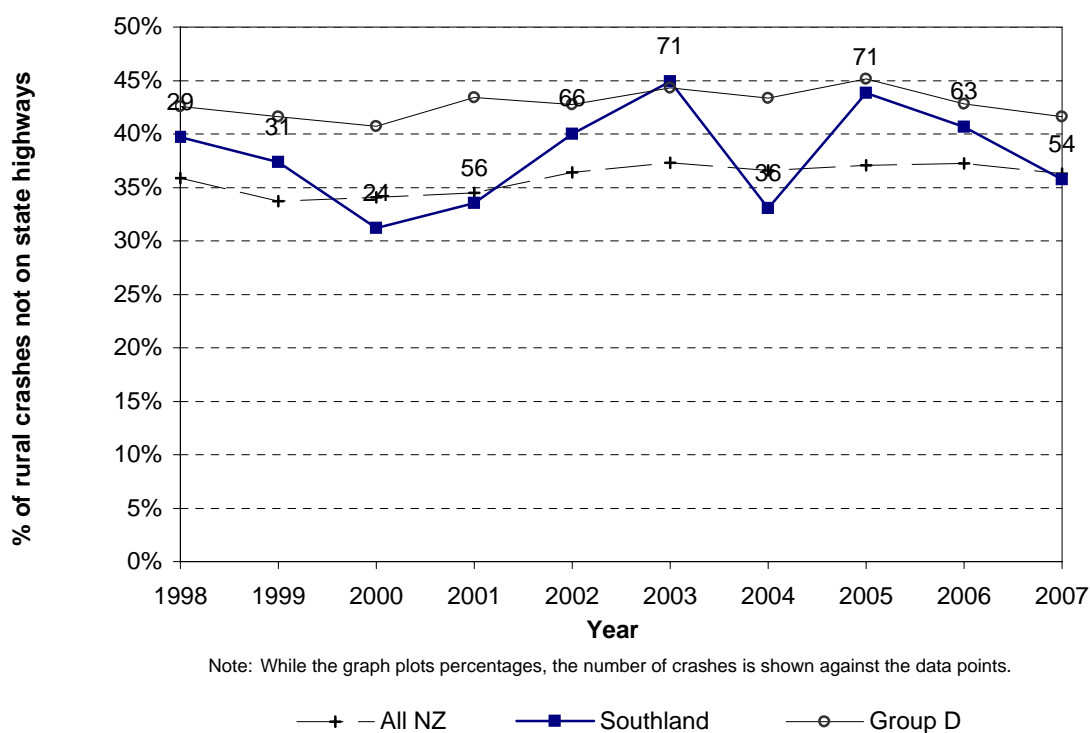


Environmental statistics

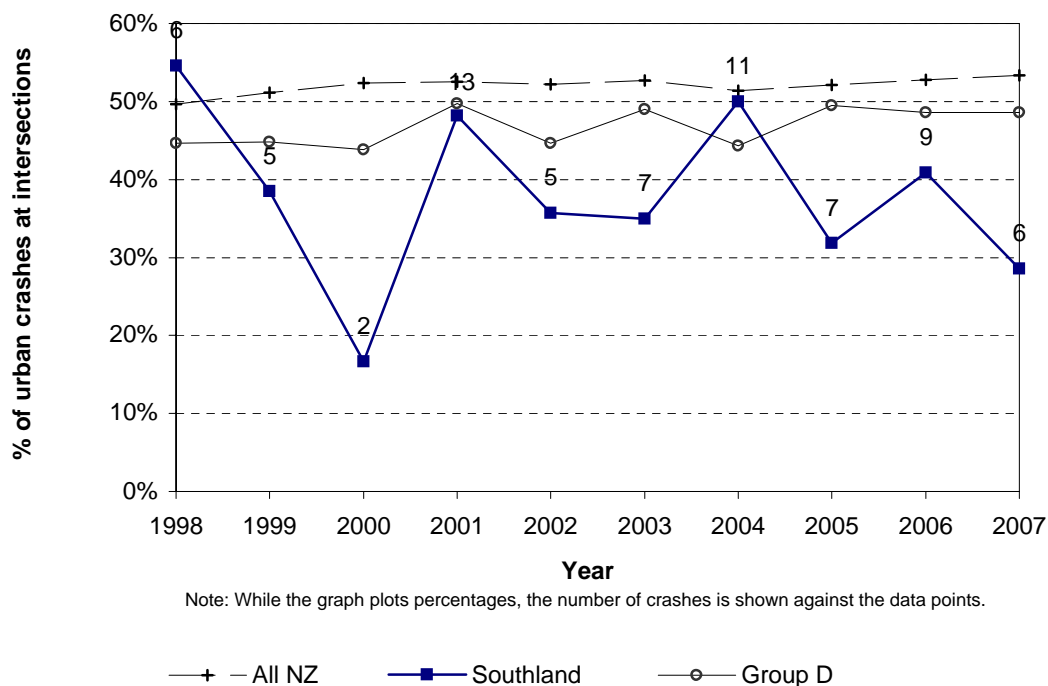
**Figure 6.1 Crashes not on state highways
Southland District - urban roads**



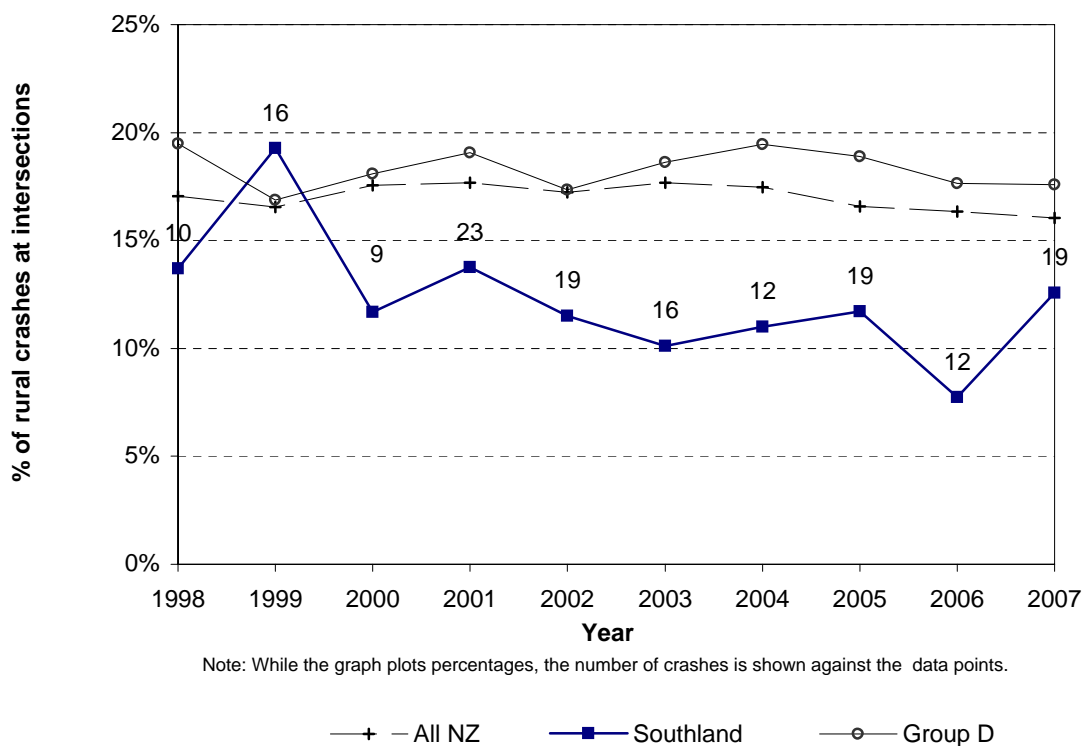
**Figure 6.2 Crashes not on state highways
Southland District - rural roads**



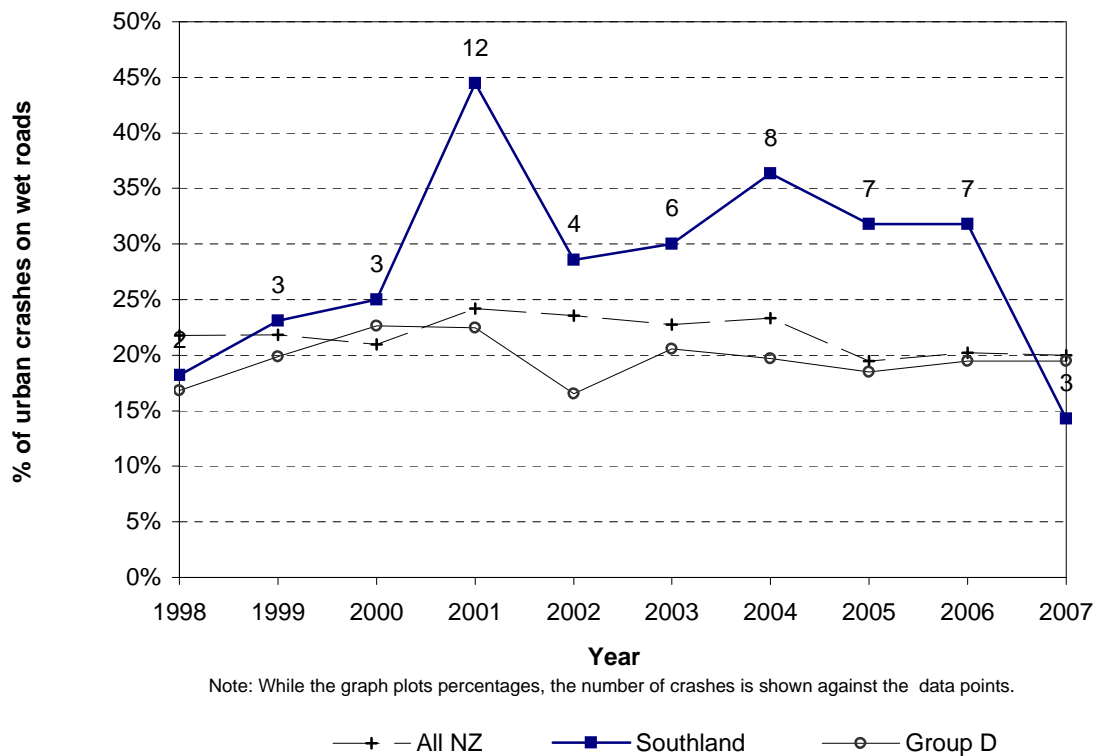
**Figure 6.3 Intersection crashes
Southland District - urban roads**



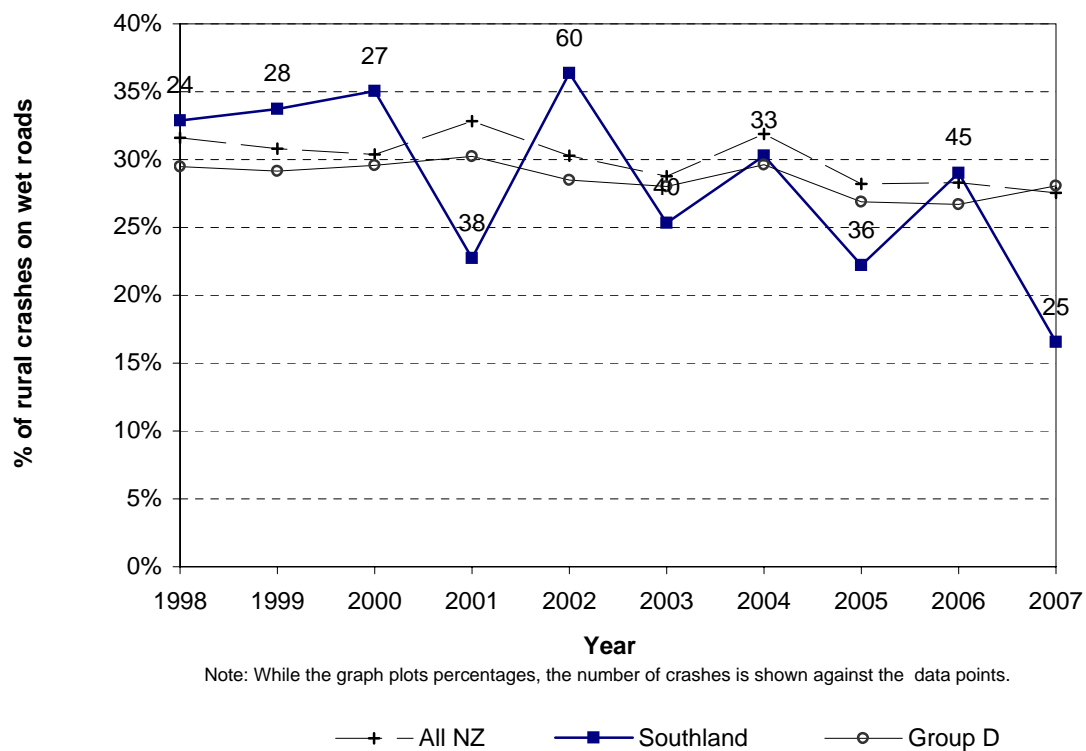
**Figure 6.4 Intersection crashes
Southland District - rural roads**



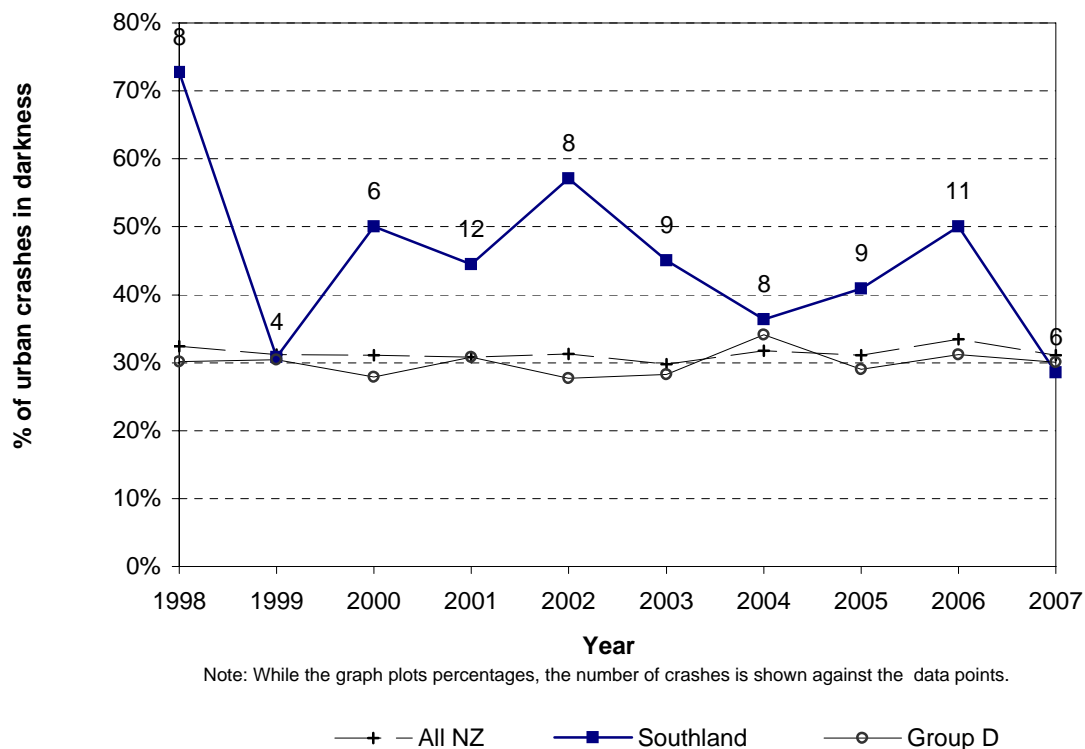
**Figure 6.5 Wet road crashes
Southland District - urban roads**



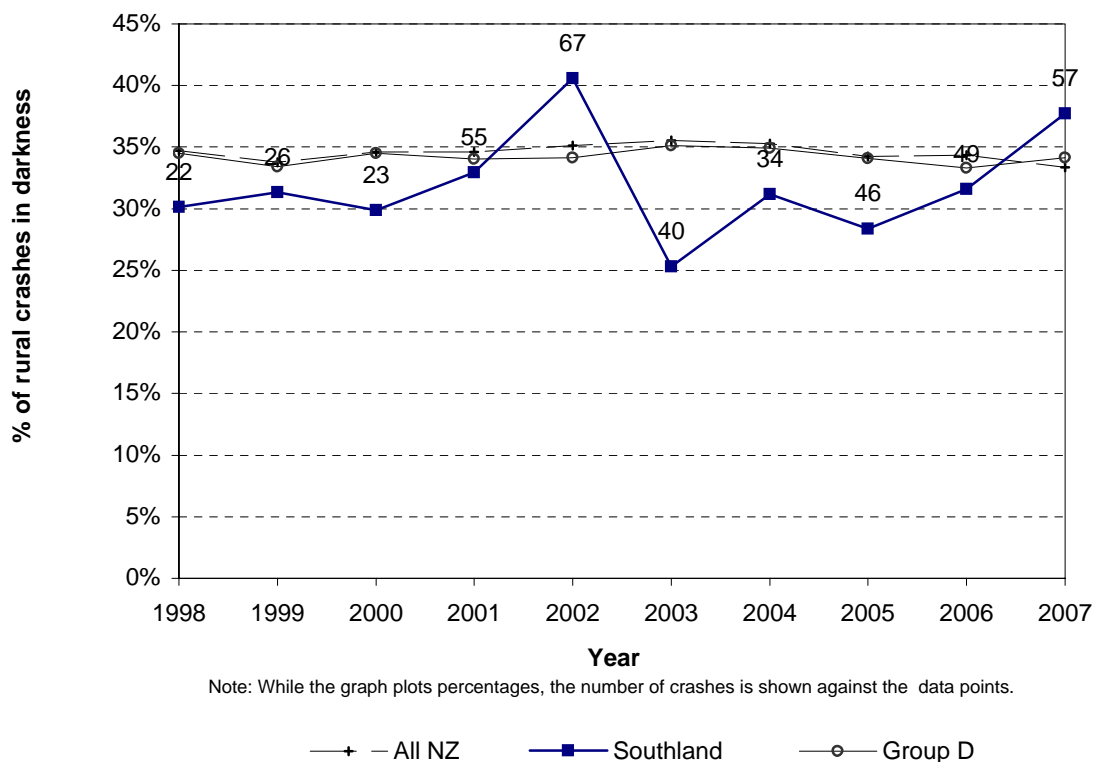
**Figure 6.6 Wet road crashes
Southland District - rural roads**



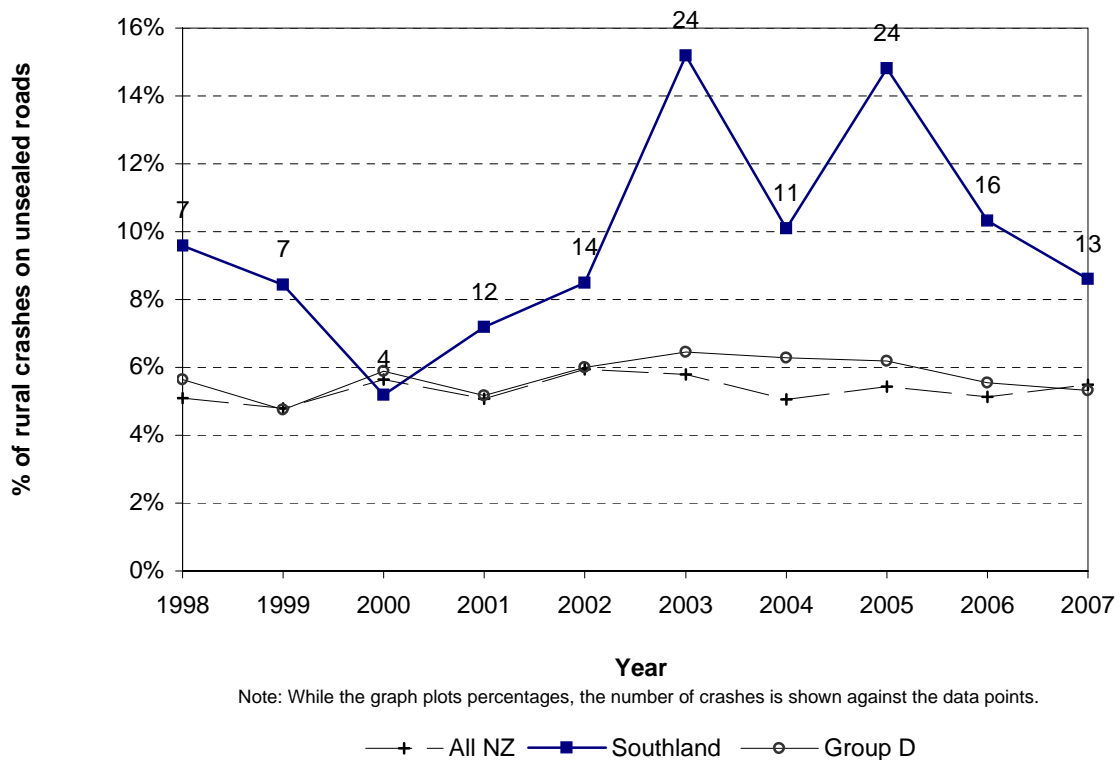
**Figure 6.7 Crashes in darkness
Southland District - urban roads**



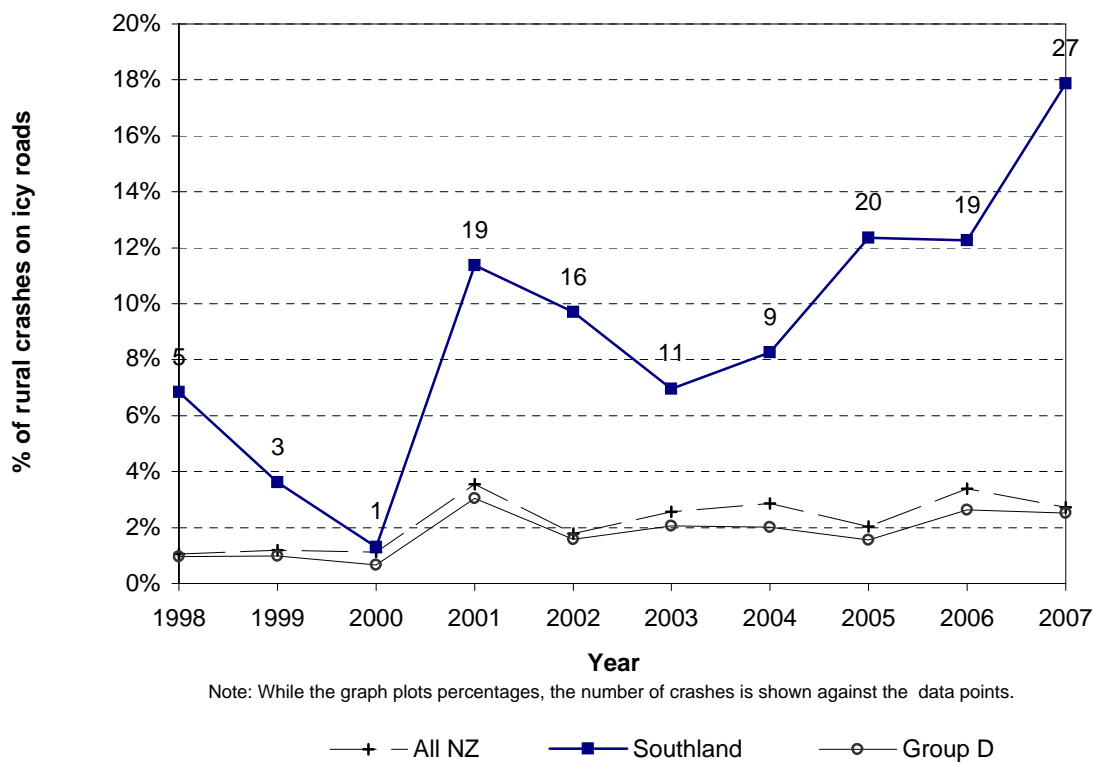
**Figure 6.8 Crashes in darkness
Southland District - rural roads**



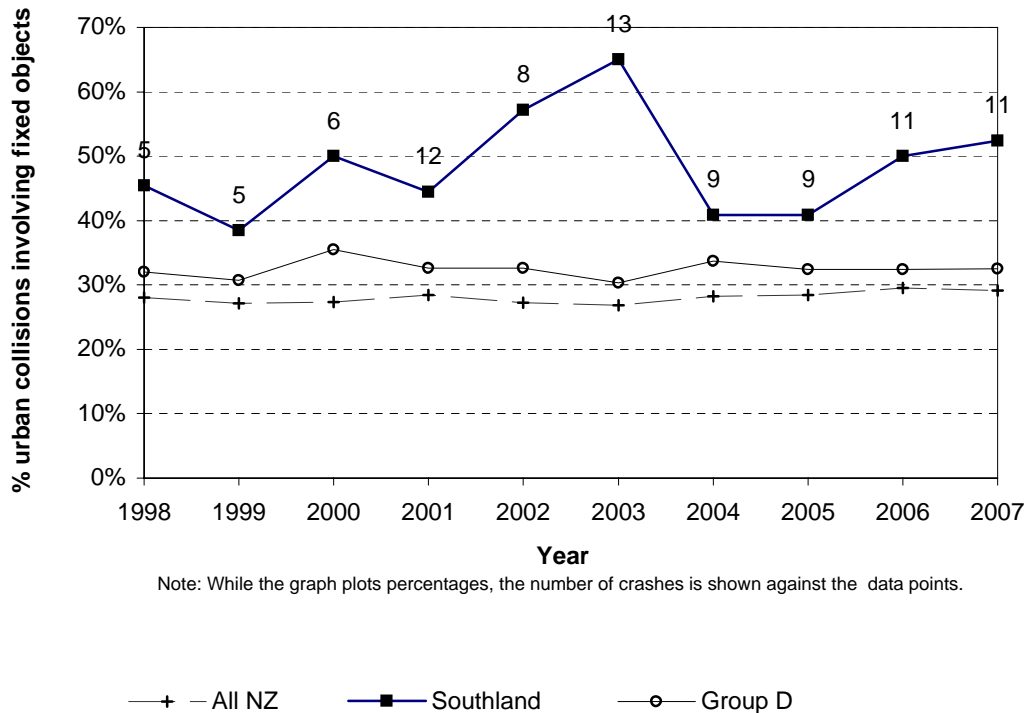
**Figure 6.9 Unsealed road crashes
Southland District - rural roads**



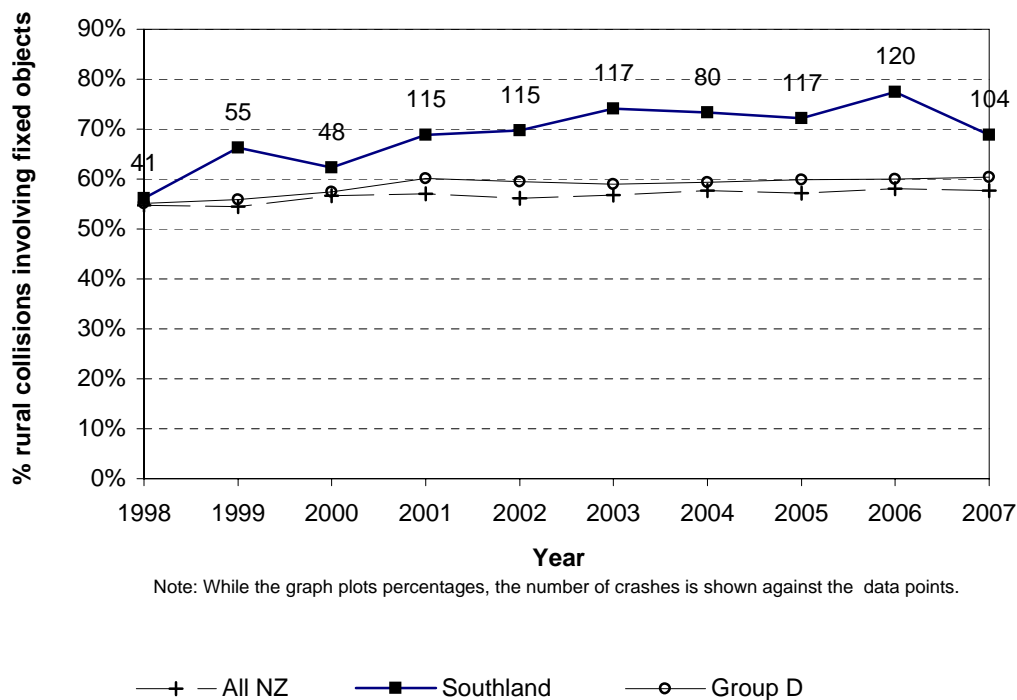
**Figure 6.10 Icy road crashes
Southland District - rural roads**



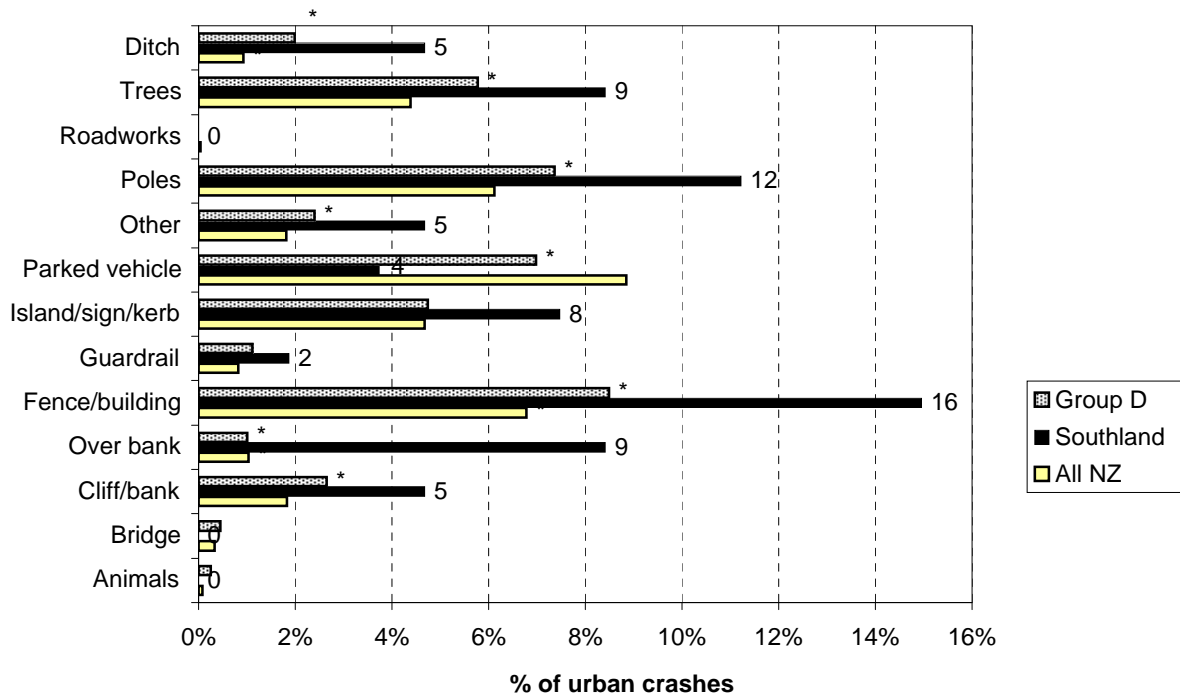
**Figure 6.11 Collisions with objects
Southland District - urban roads**



**Figure 6.12 Collisions with objects
Southland District - rural roads**

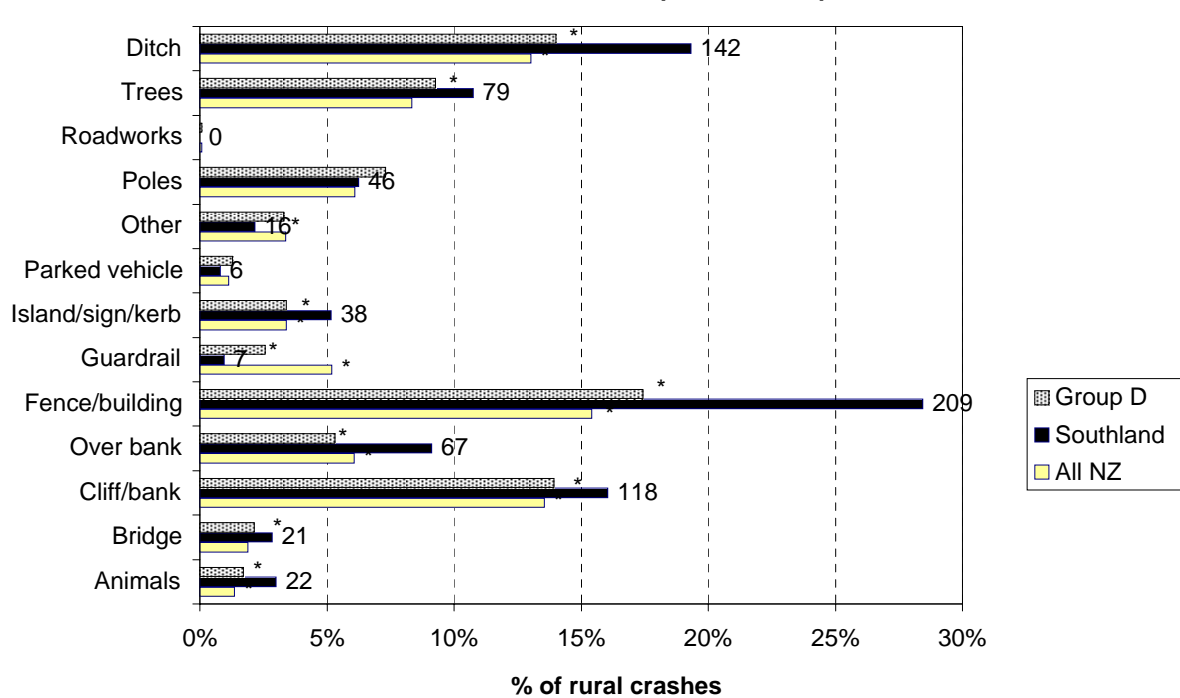


**Figure 6.13 Objects struck - urban
Southland District (2003-2007)**



Note: While the graph plots percentages, the number of crashes is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

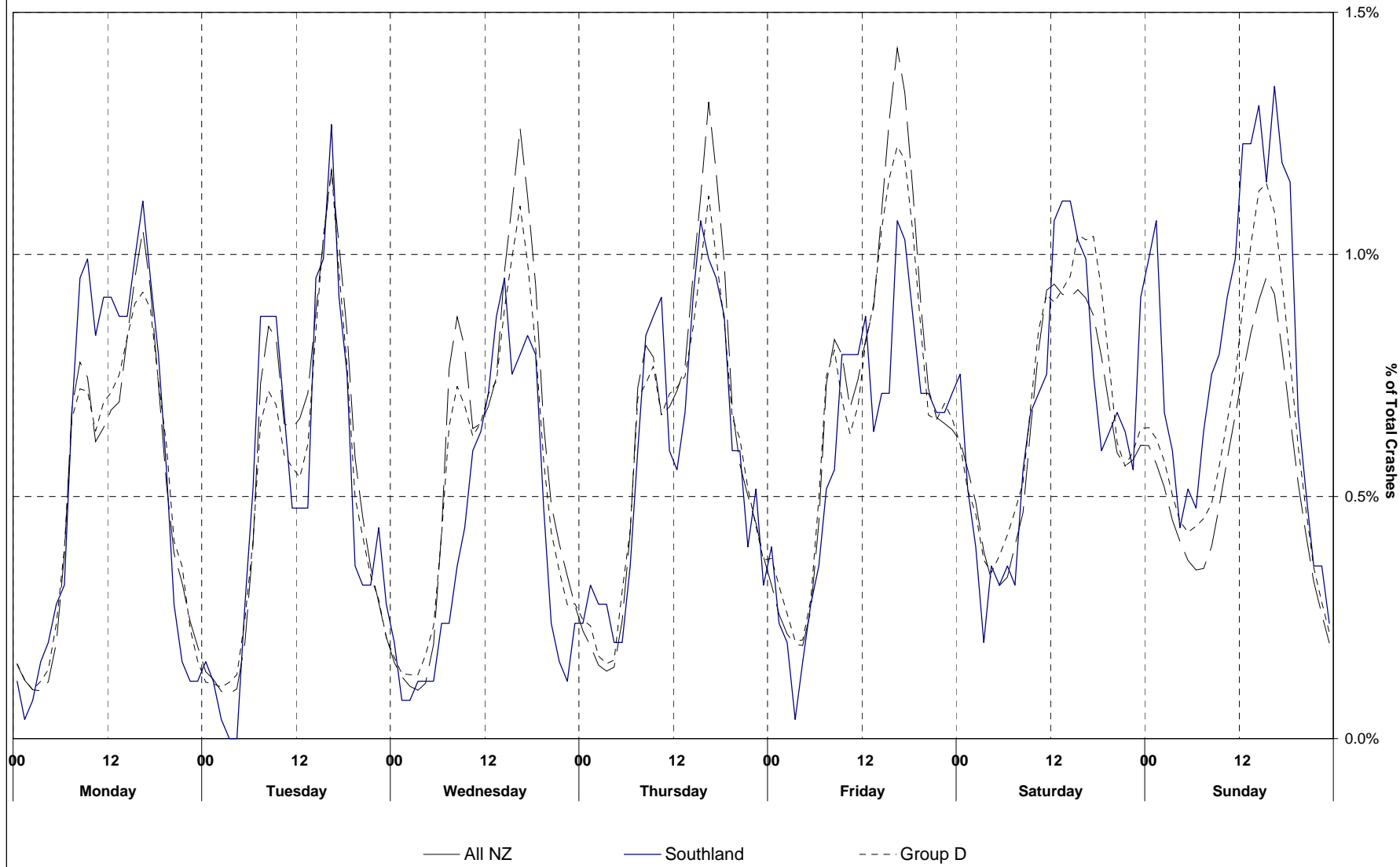
**Figure 6.14 Objects struck - rural
Southland District (2003-2007)**



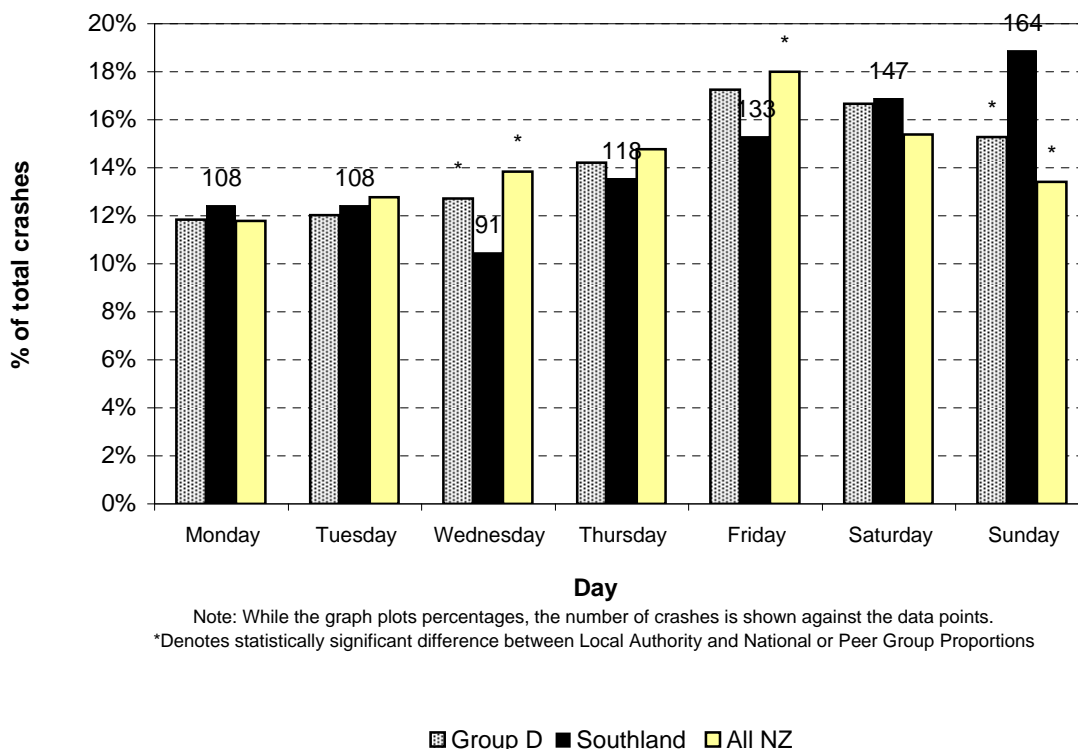
Note: While the graph plots percentages, the number of crashes is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

Date and time statistics

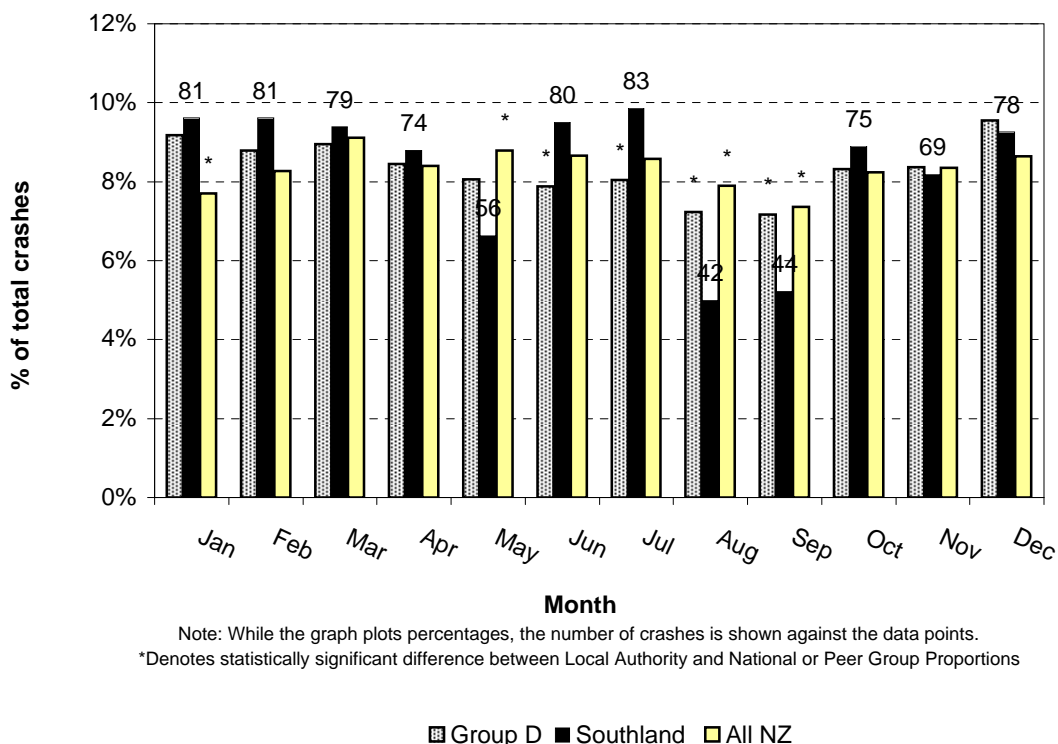
**Figure 7.1 Time pattern over average week
Southland District (2003-2007)**



**Figure 7.2 Day of week (6 a.m. to 6 a.m.)
Southland District (2003-2007)**



**Figure 7.3 Month of year
Southland District (2003-2007)**



Local road statistics

Figure 8.1 Number of injury crashes
Southland District - local roads (urban & rural)

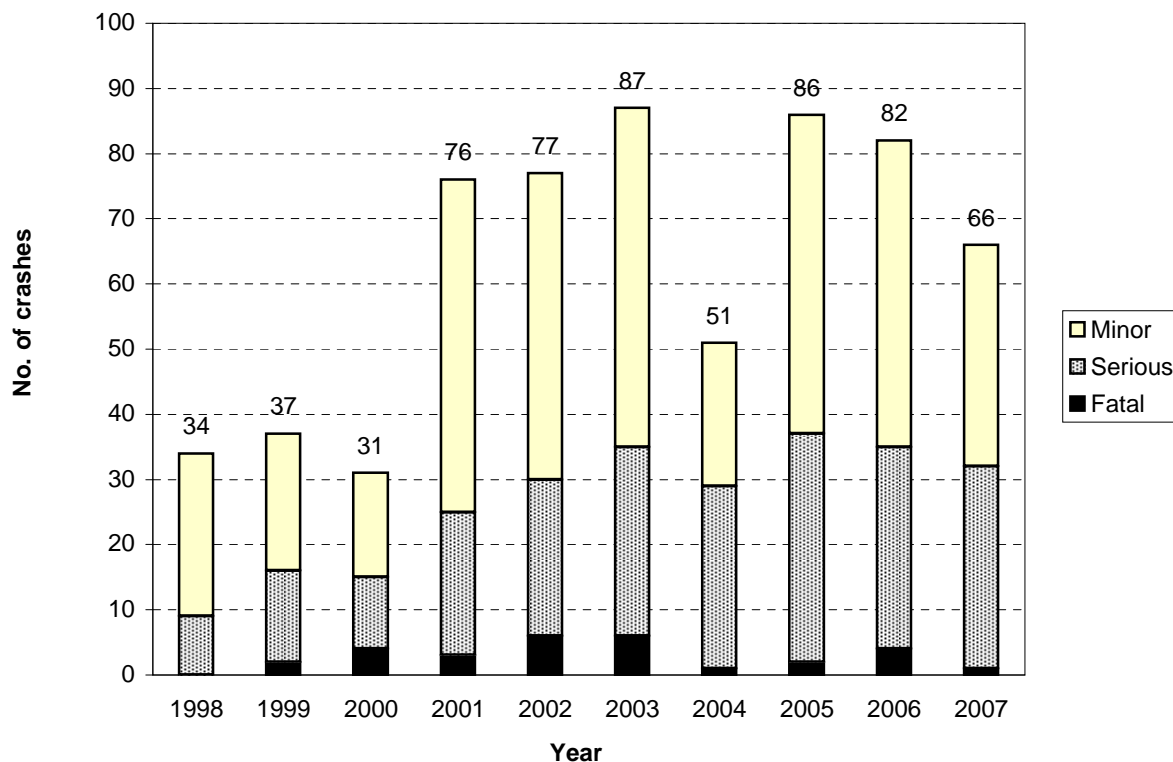
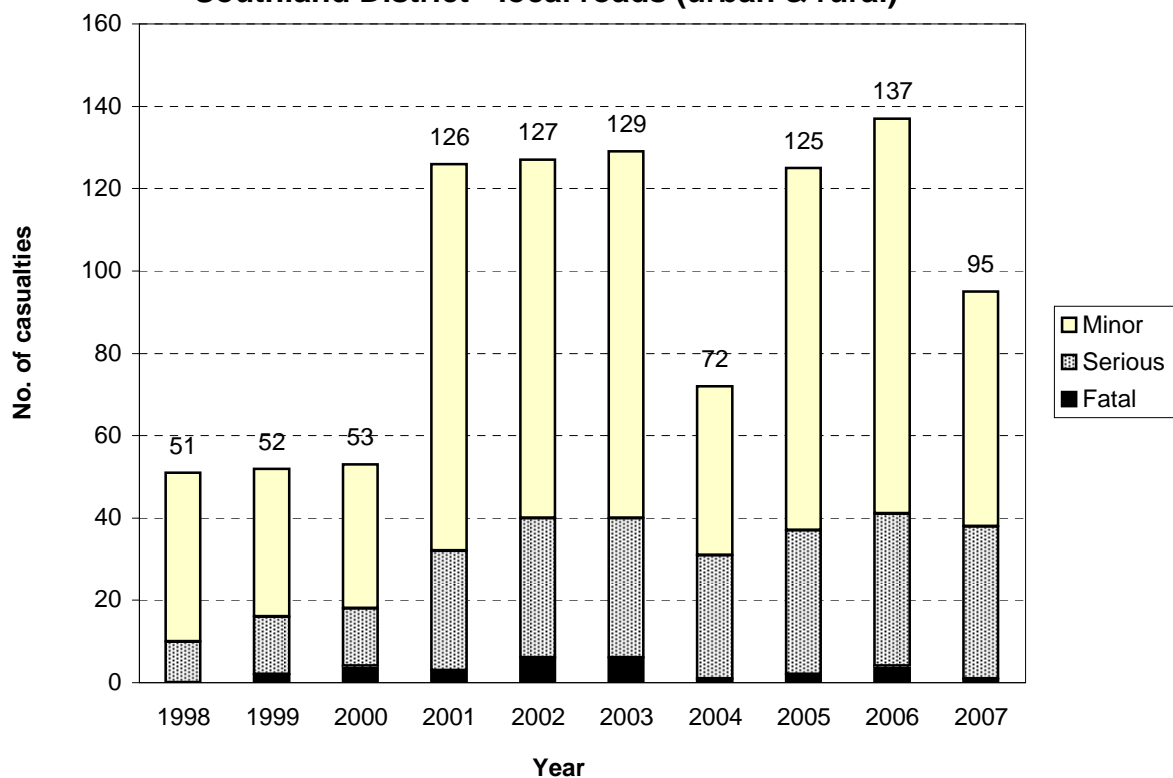
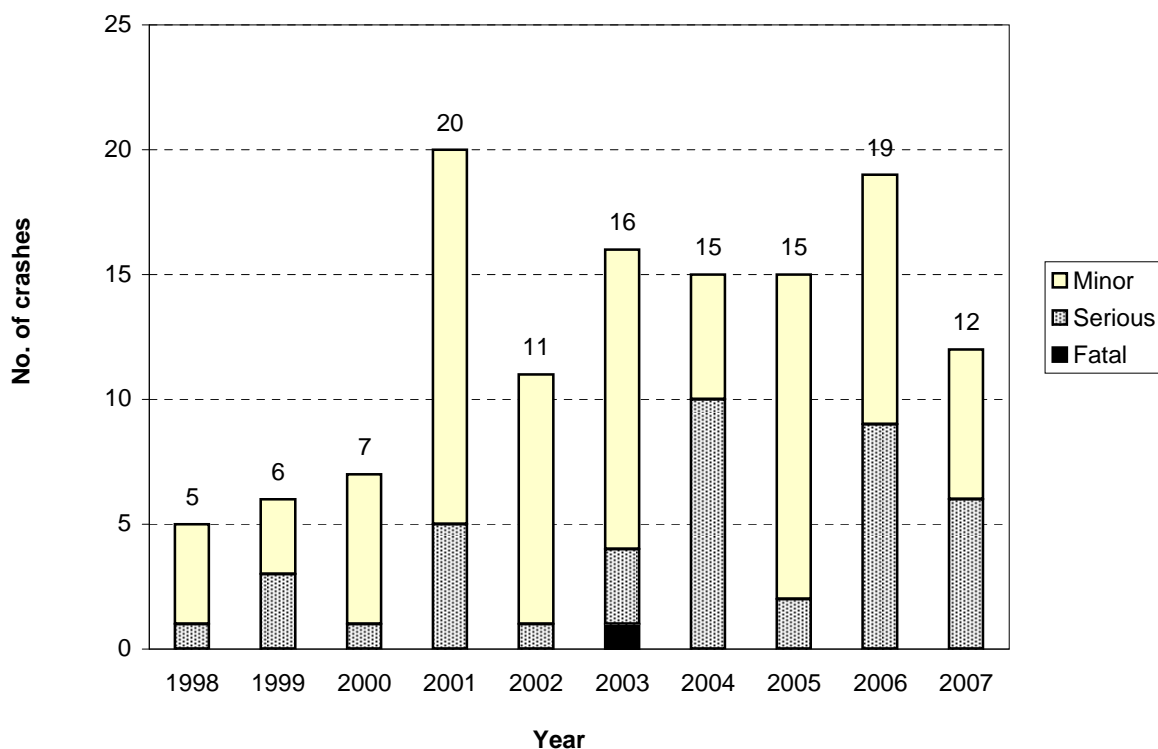


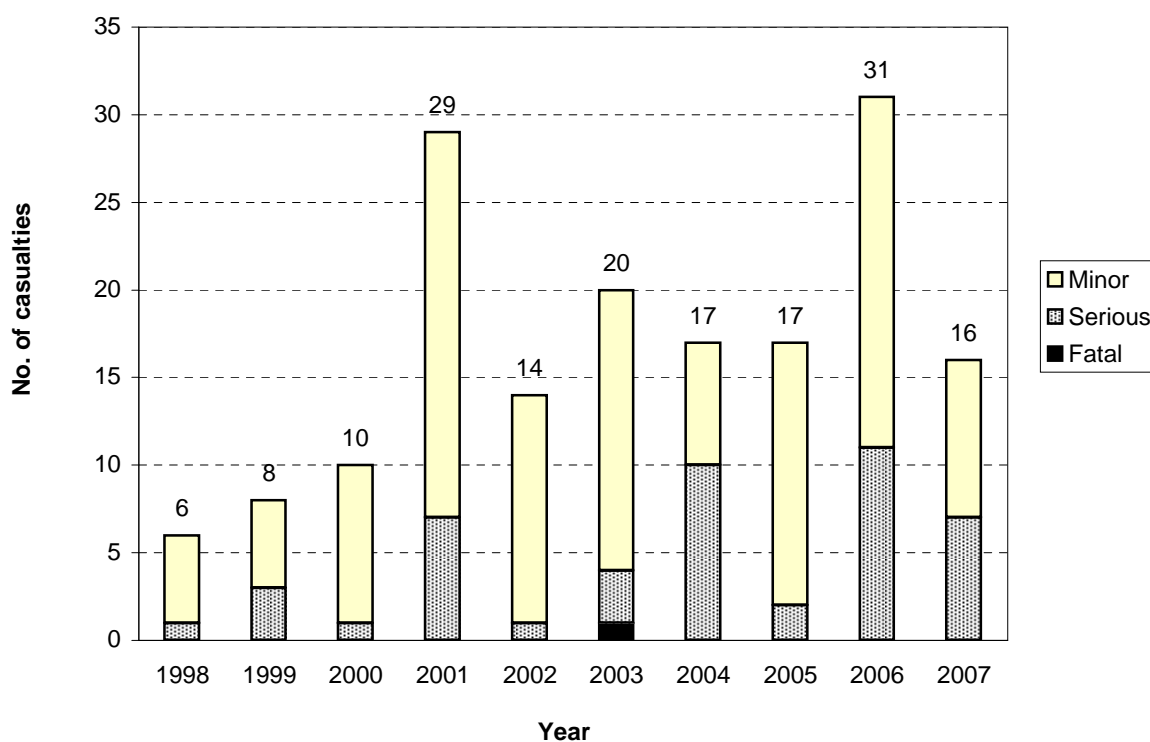
Figure 8.2 Number of casualties
Southland District - local roads (urban & rural)



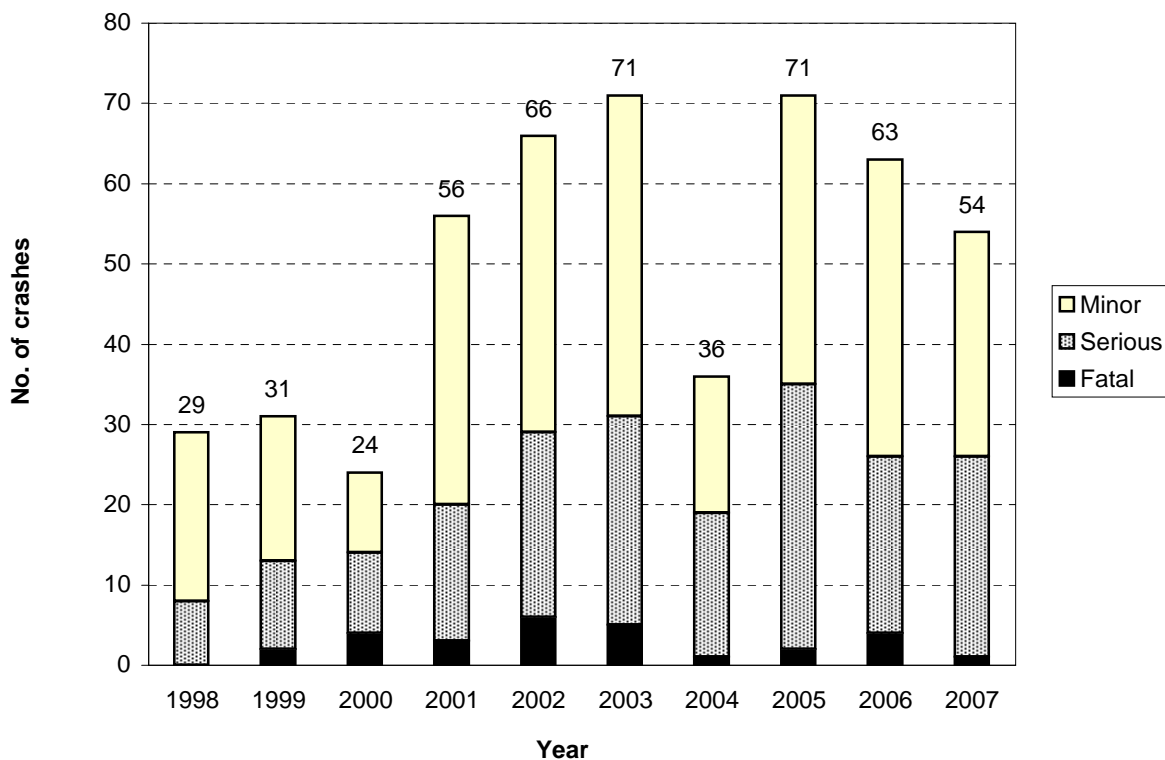
**Figure 8.3 Number of injury crashes
Southland District - urban local roads**



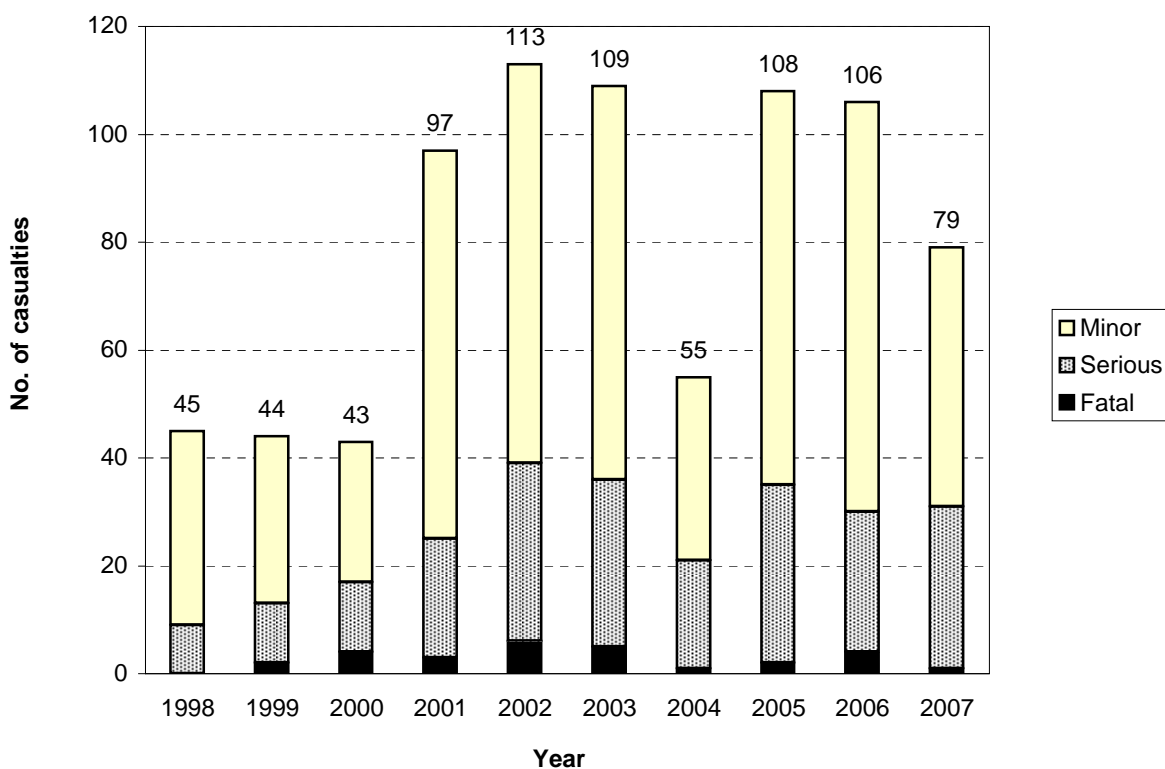
**Figure 8.4 Number of casualties
Southland District - urban local roads**



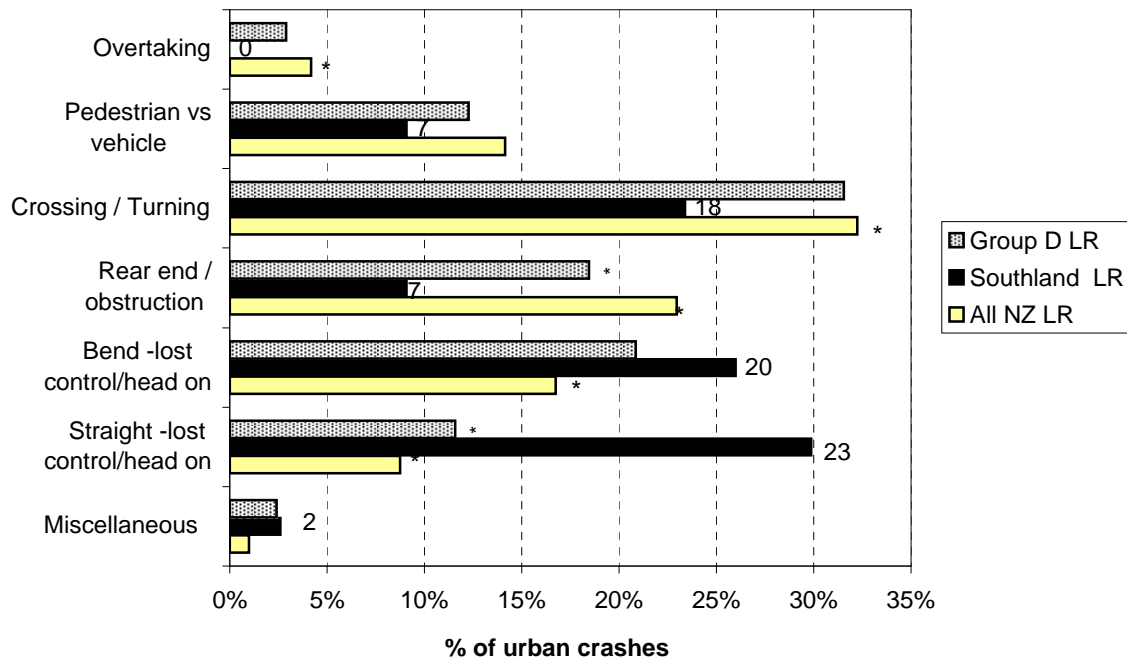
**Figure 8.5 Number of injury crashes
Southland District - rural local roads**



**Figure 8.6 Number of casualties
Southland District - rural local roads**

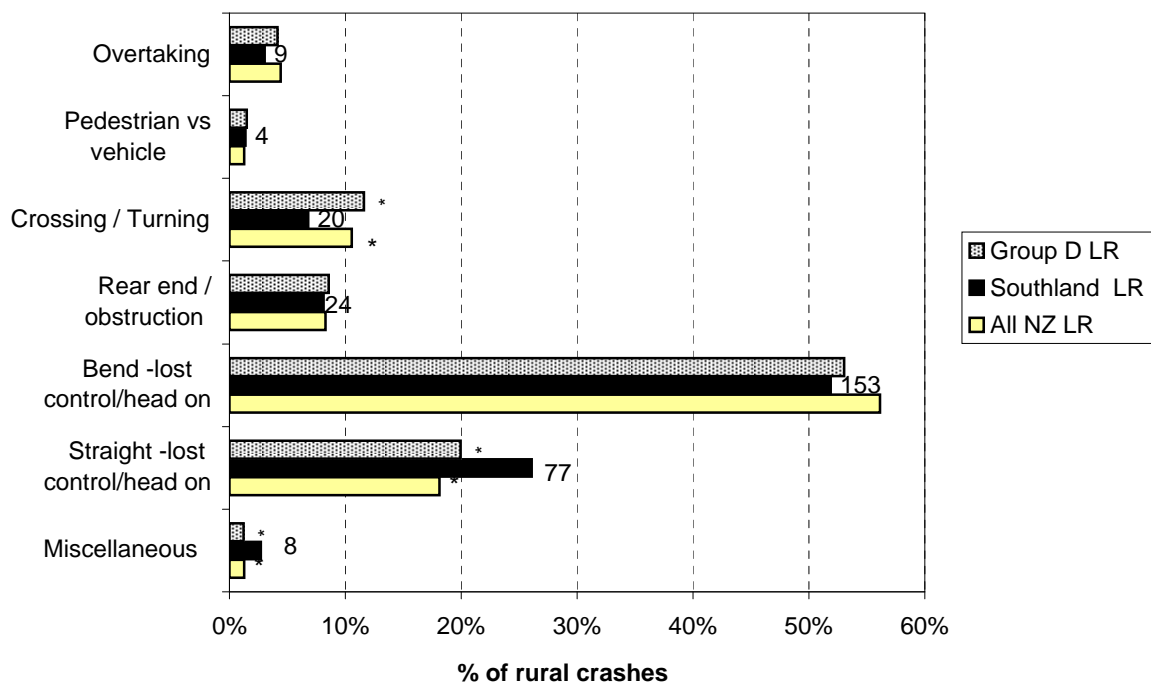


**Figure 8.7 Crash movement type - urban
Southland District local roads (2003-2007)**



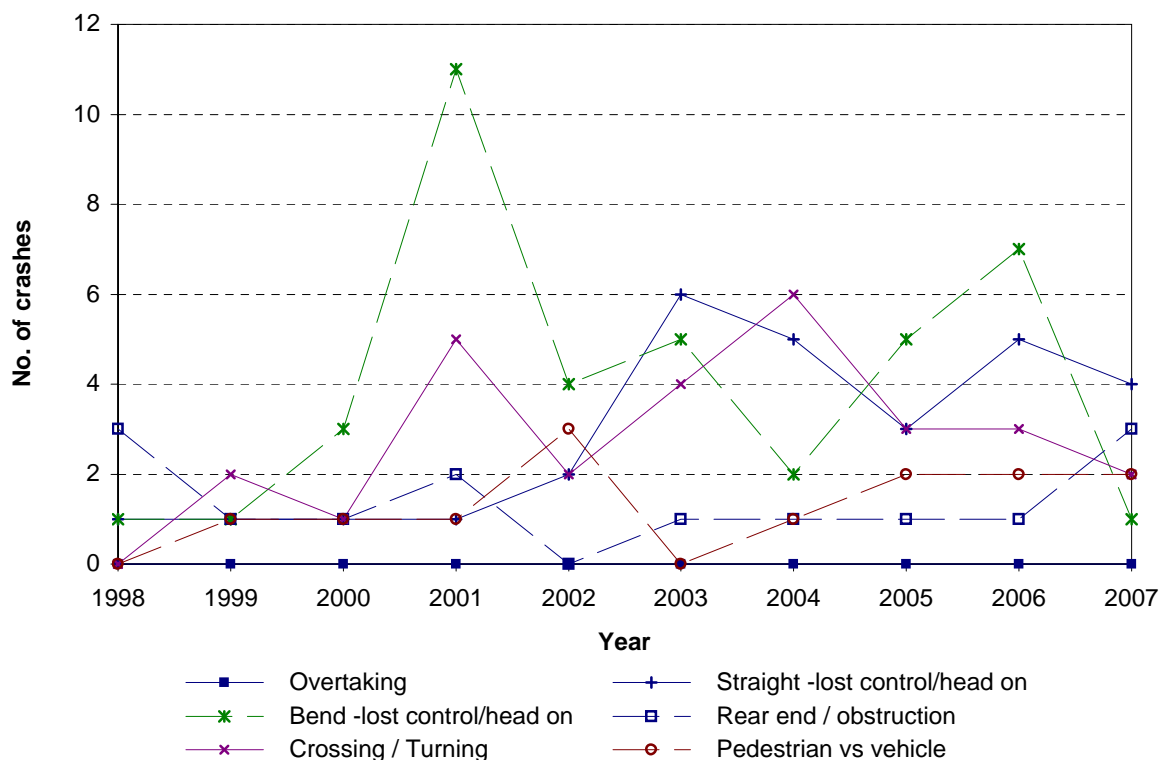
Note: While the graph plots percentages, the number of crashes is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

**Figure 8.8 Crash movement type - rural
Southland District local roads (2003-2007)**

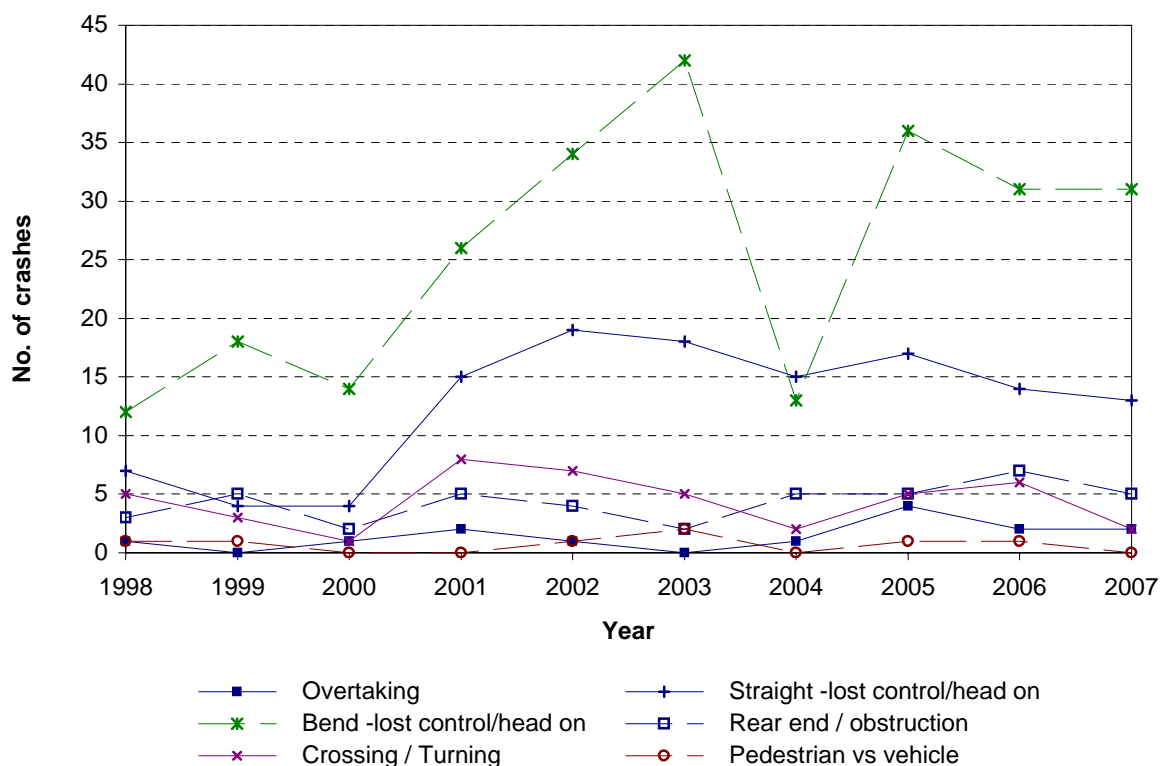


Note: While the graph plots percentages, the number of crashes is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

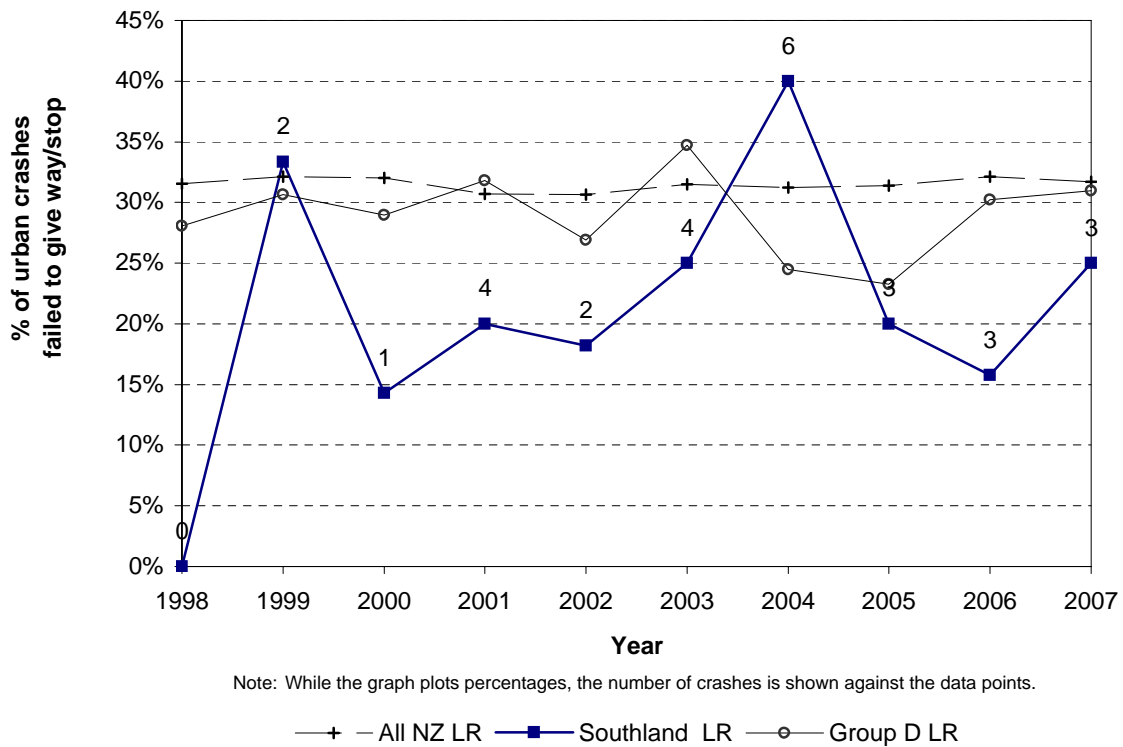
**Figure 8.9 Crash movement type - Trends
Southland District - urban local roads**



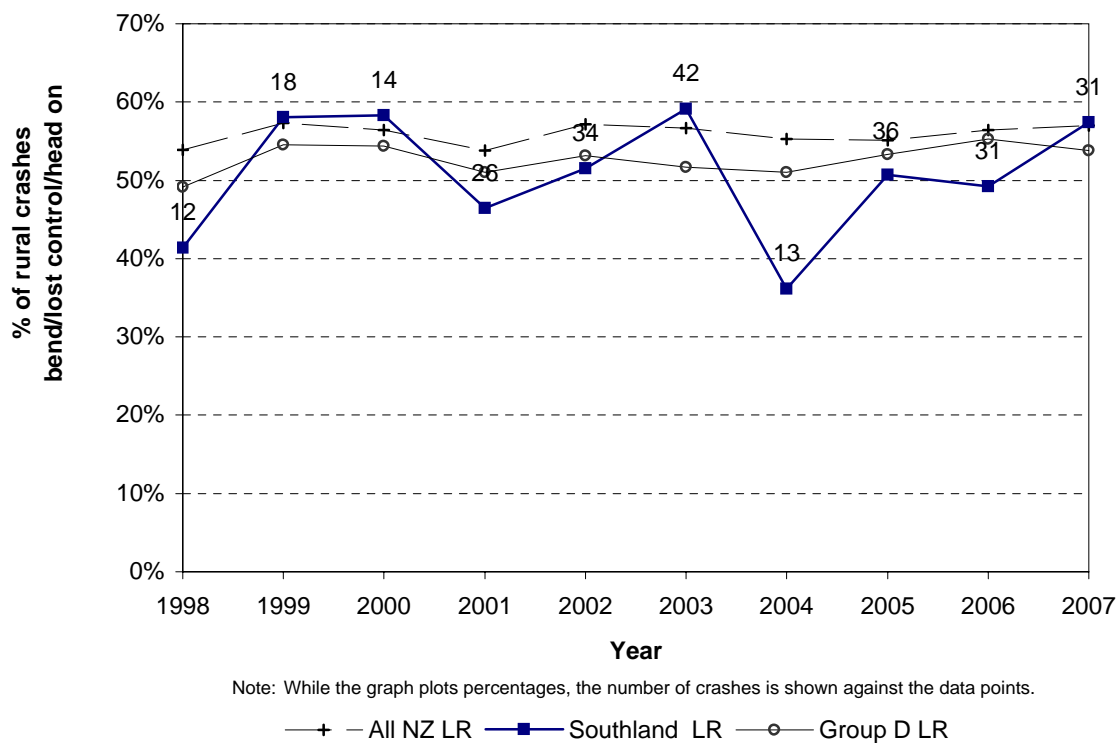
**Figure 8.10 Crash movement type - Trends
Southland District - rural local roads**



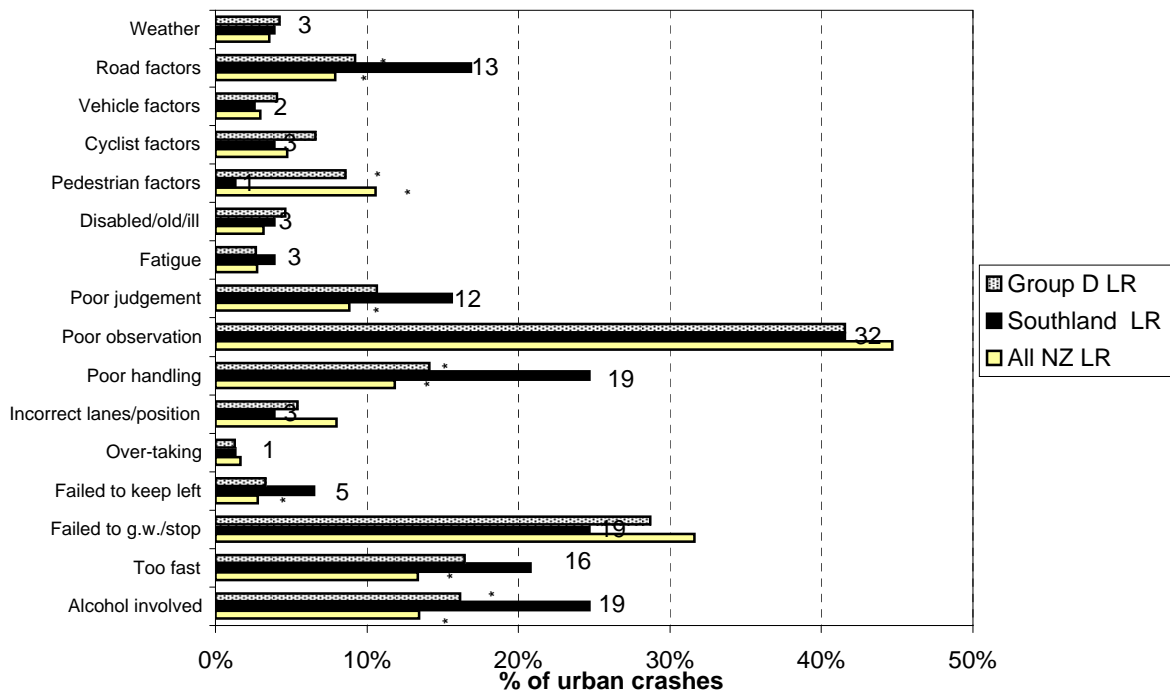
**Figure 8.11 Failed to give way/stop
Southland District - urban local roads**



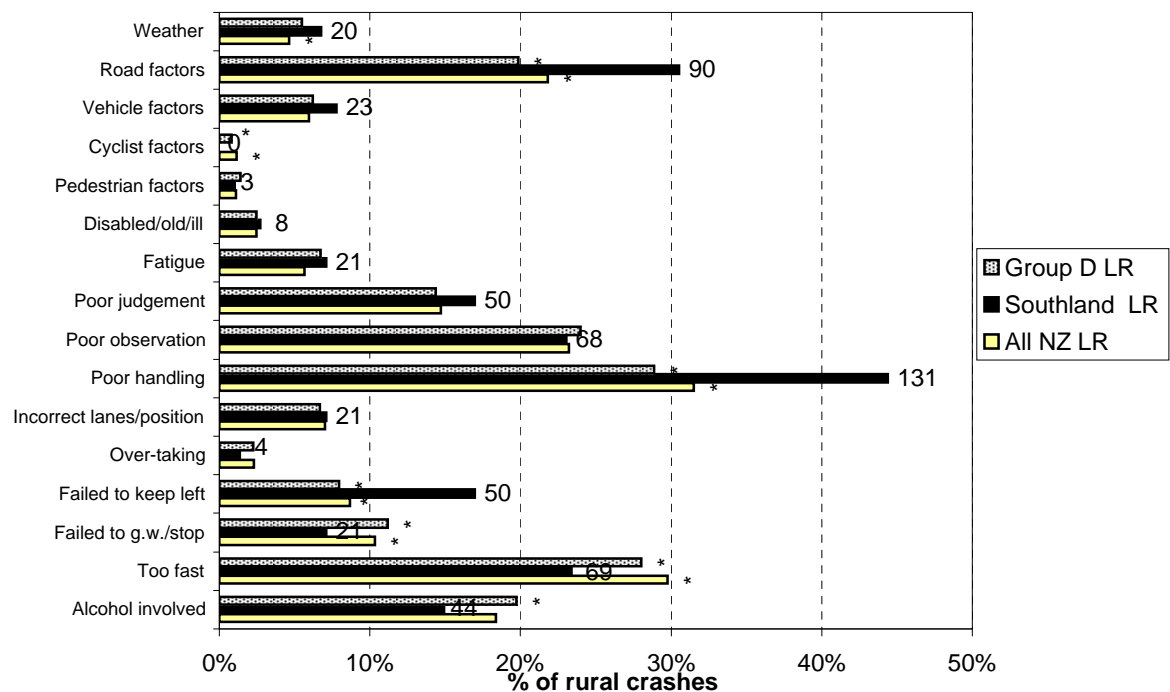
**Figure 8.12 Bend - lost control / head - on
Southland District - rural local roads**



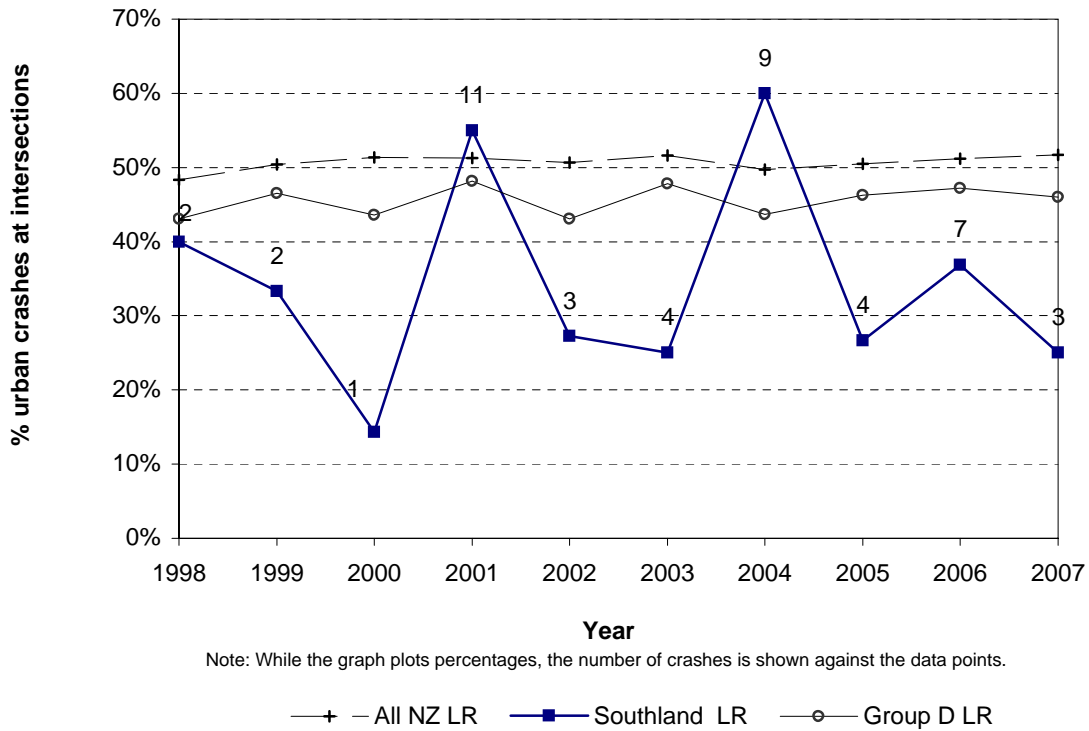
**Figure 8.13 Contributing factors - urban
Southland District local roads (2003-2007)**



**Figure 8.14 Contributing factors - rural
Southland District local roads (2003-2007)**



**Figure 8.15 Intersection crashes
Southland District - urban local roads**



**Figure 8.16 Intersection crashes
Southland District - rural local roads**

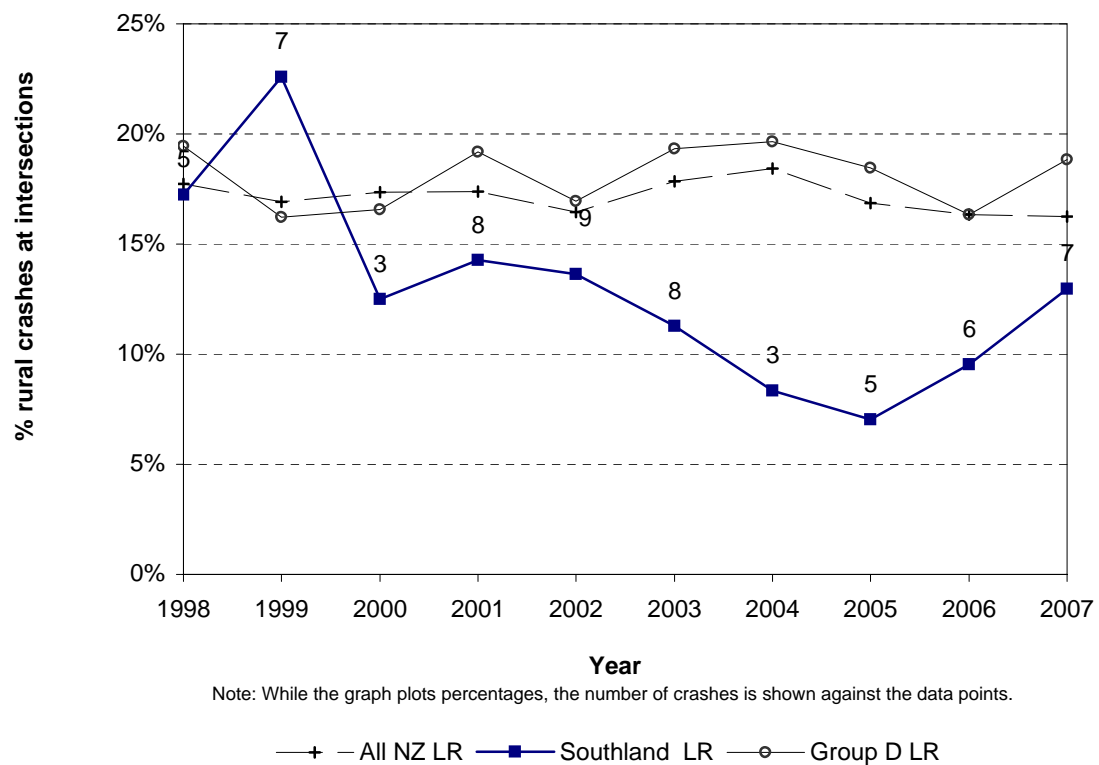


Figure 8.17 Wet road crashes
Southland District - urban local roads

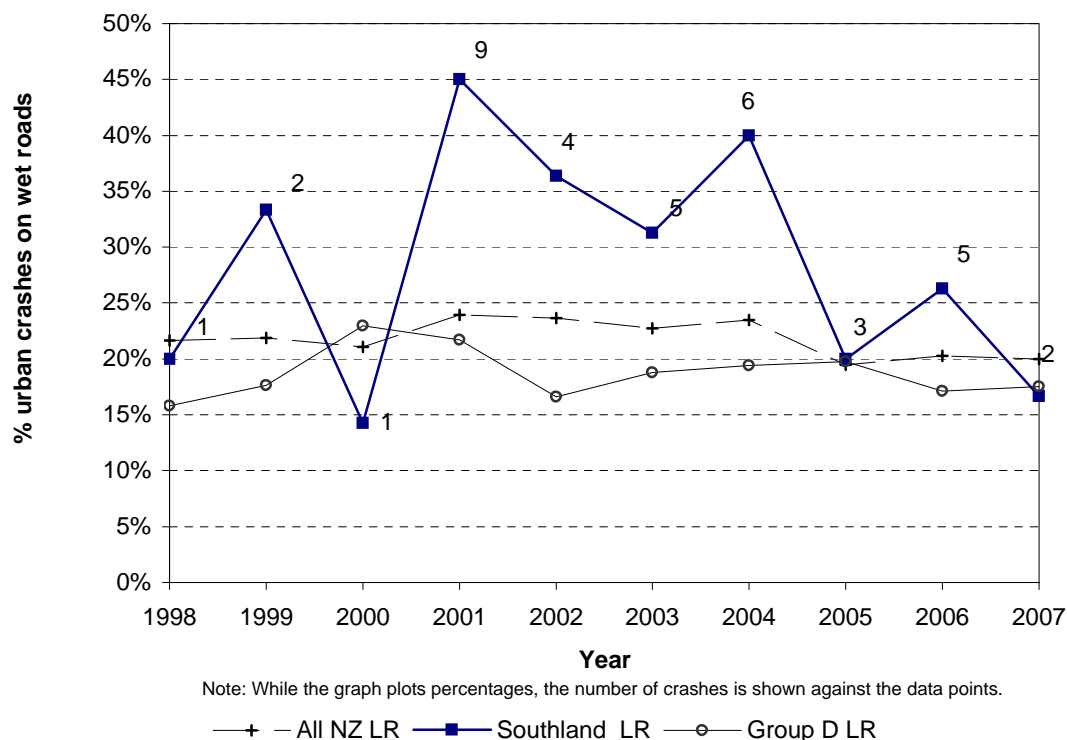
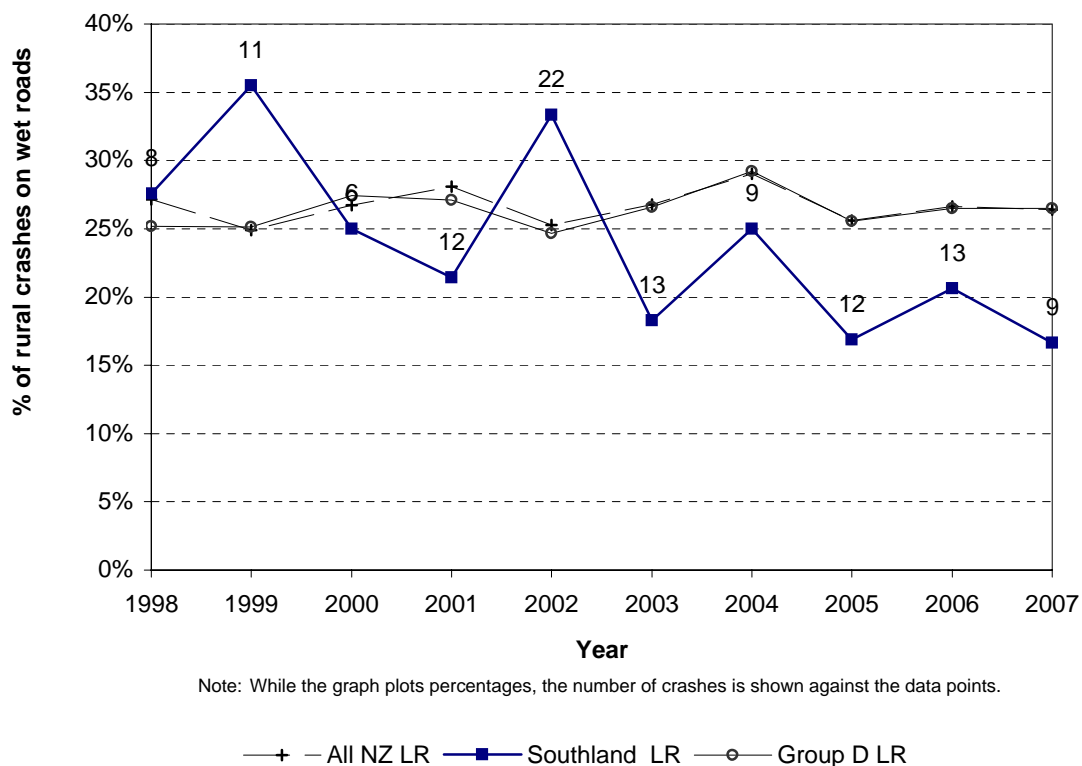
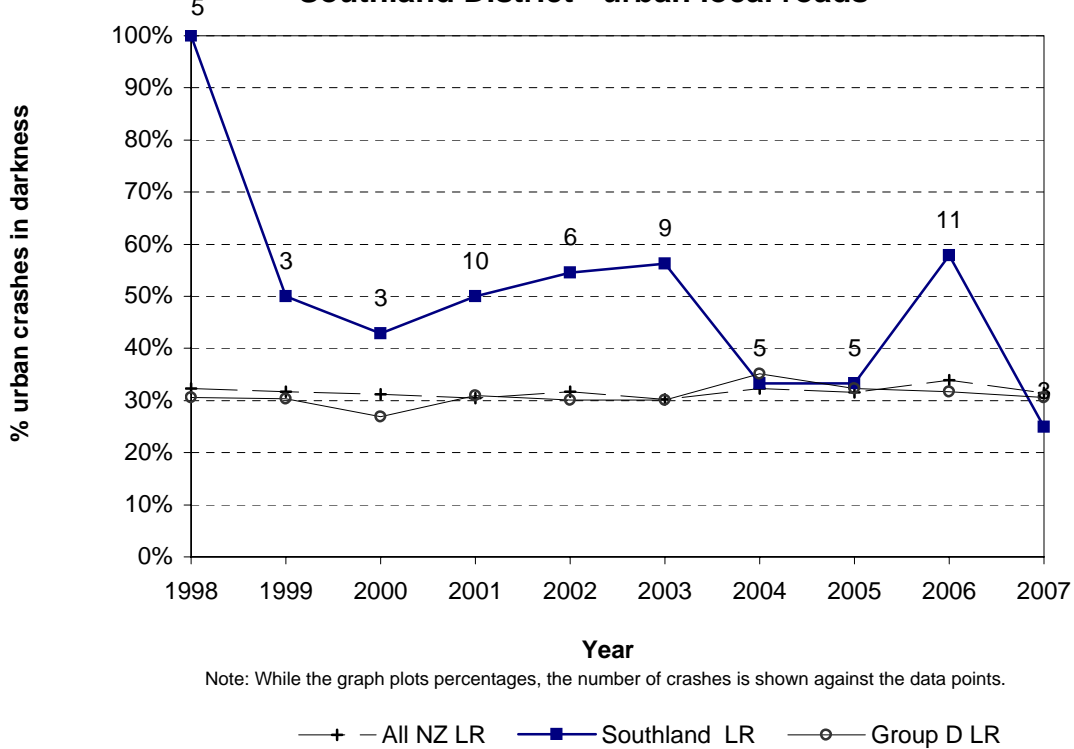


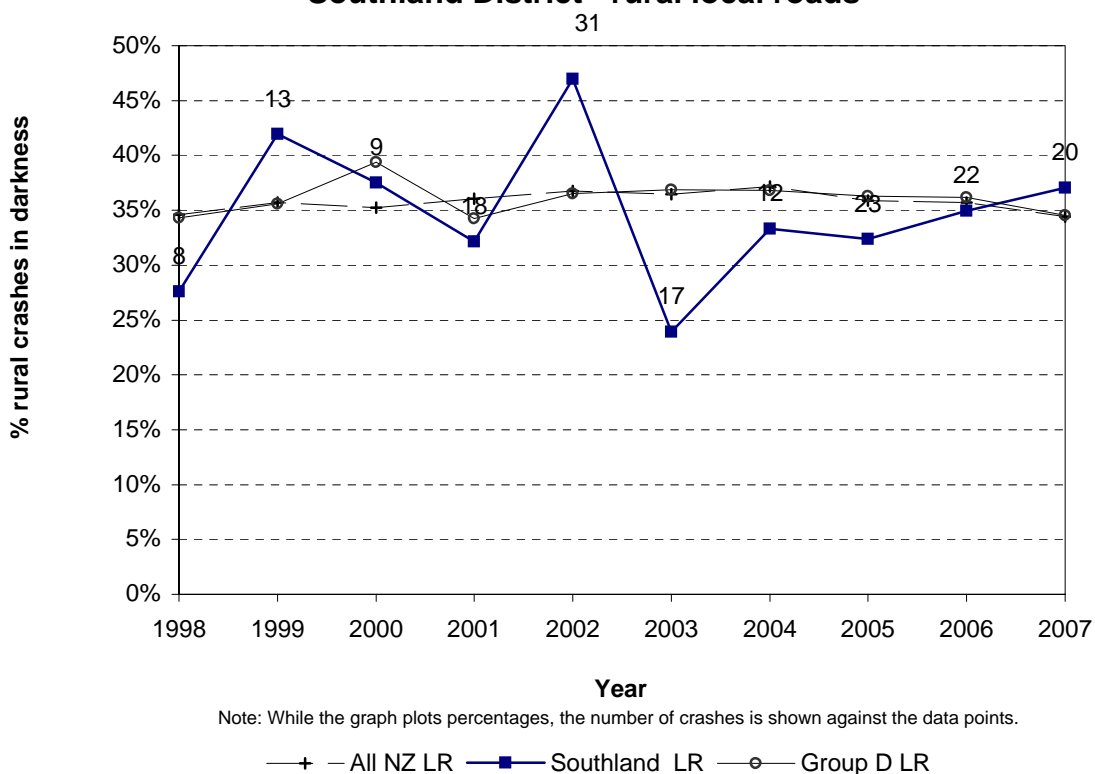
Figure 8.18 Wet road crashes
Southland District - rural local roads



**Figure 8.19 Crashes in darkness
Southland District - urban local roads**

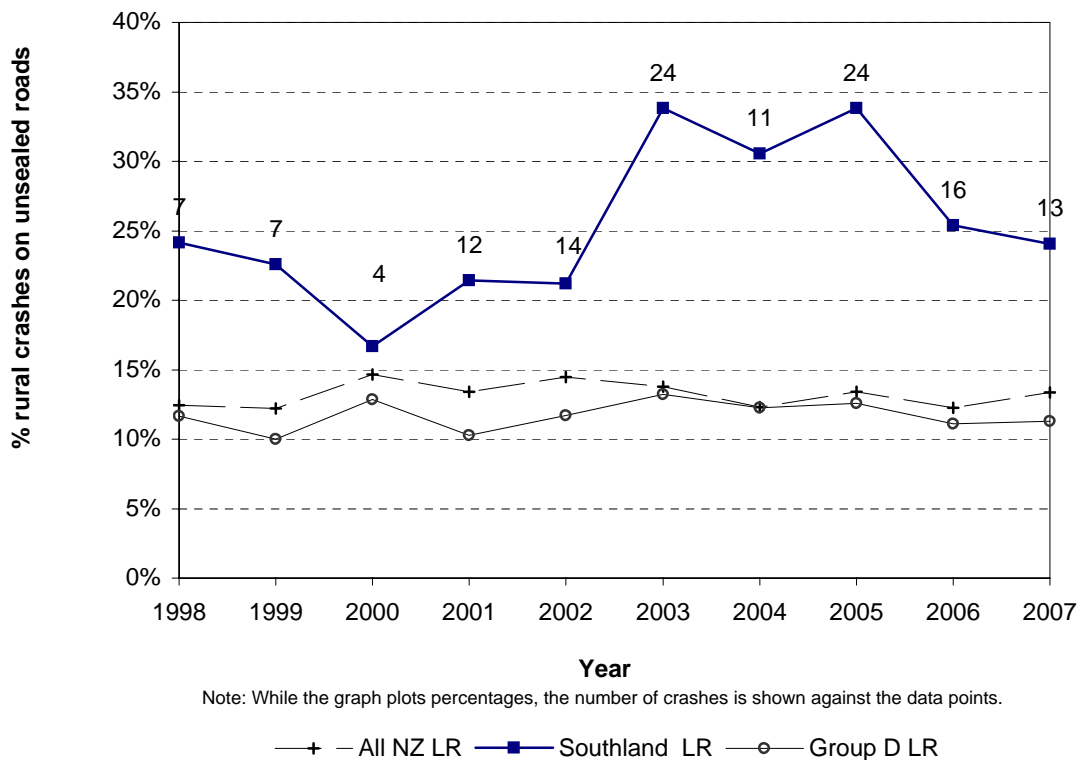


**Figure 8.20 Crashes in darkness
Southland District - rural local roads**

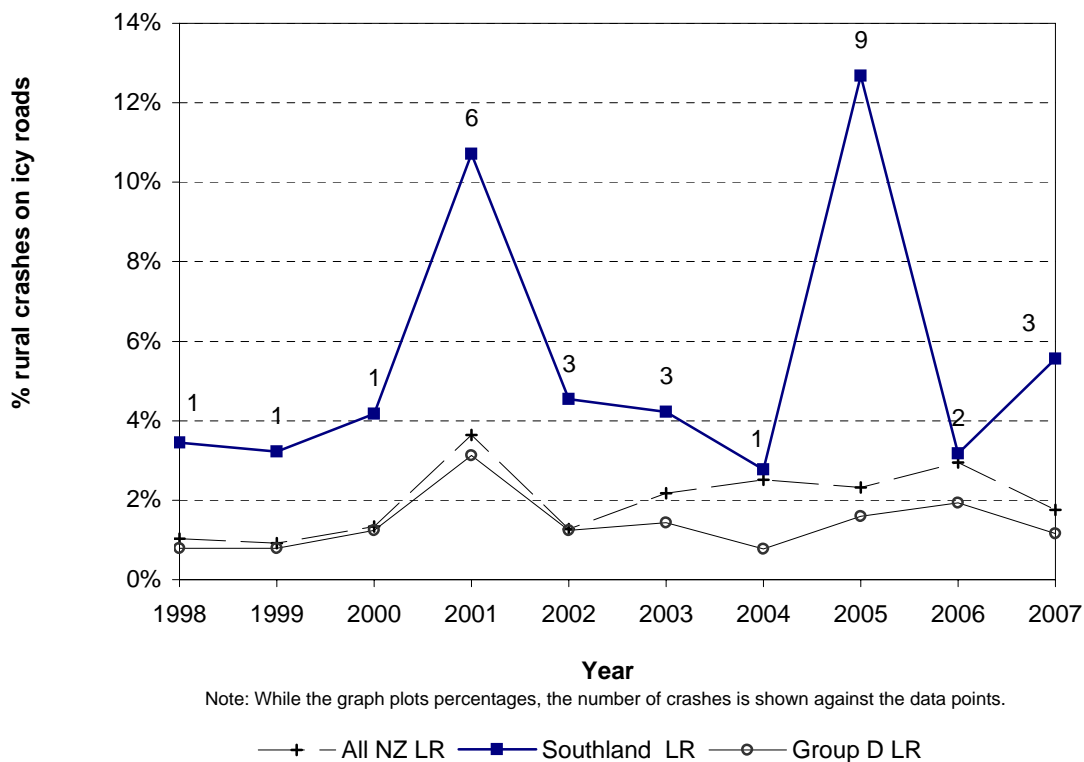




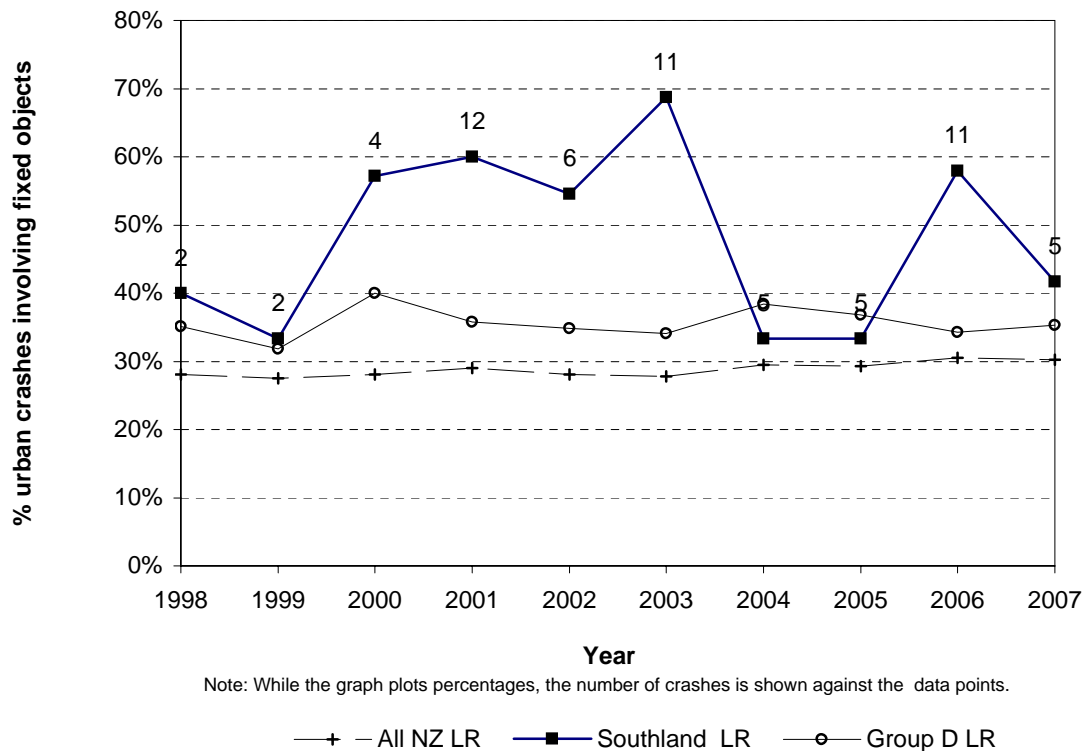
**Figure 8.21 Crashes on unsealed roads
Southland District - rural local roads**



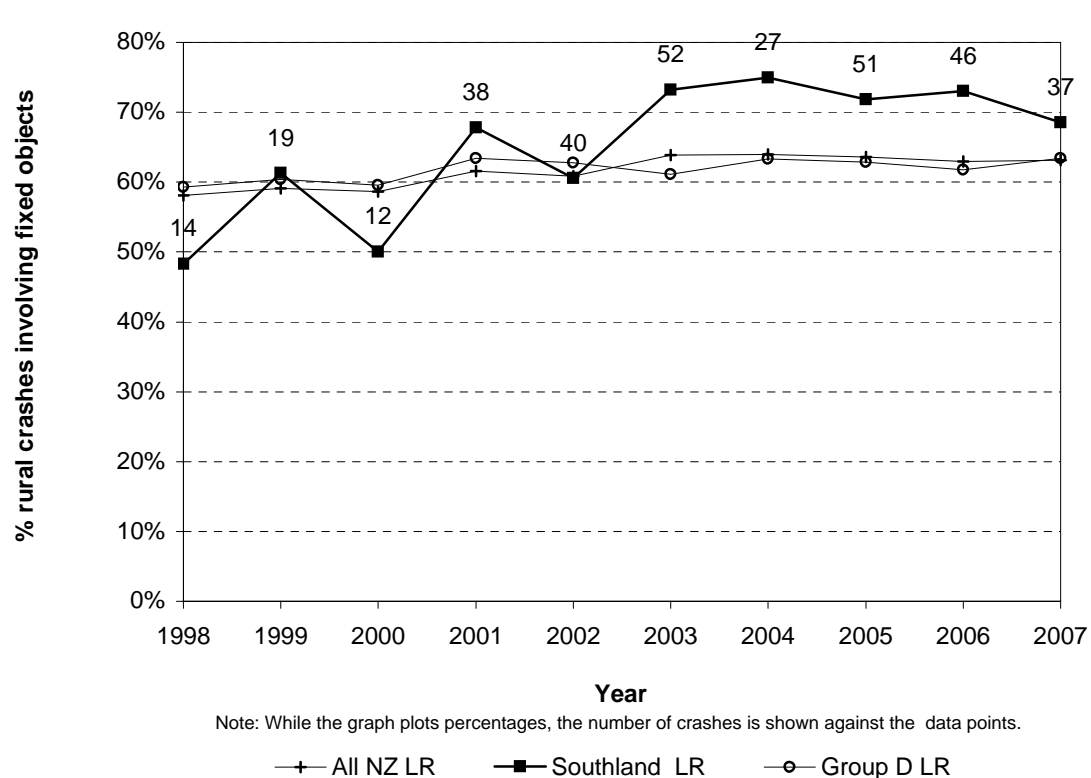
**Figure 8.22 Icy road crashes
Southland District - rural local roads**



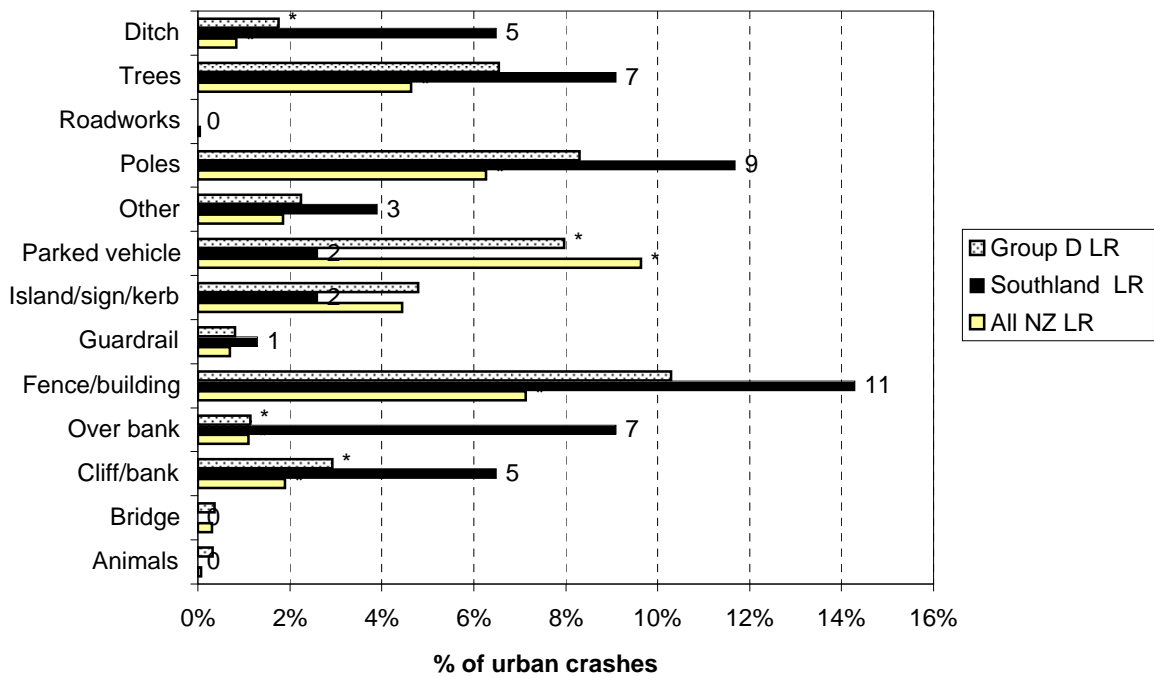
**Figure 8.23 Collisions with objects
Southland District - urban local roads**



**Figure 8.24 Collisions with objects
Southland District - rural local roads**

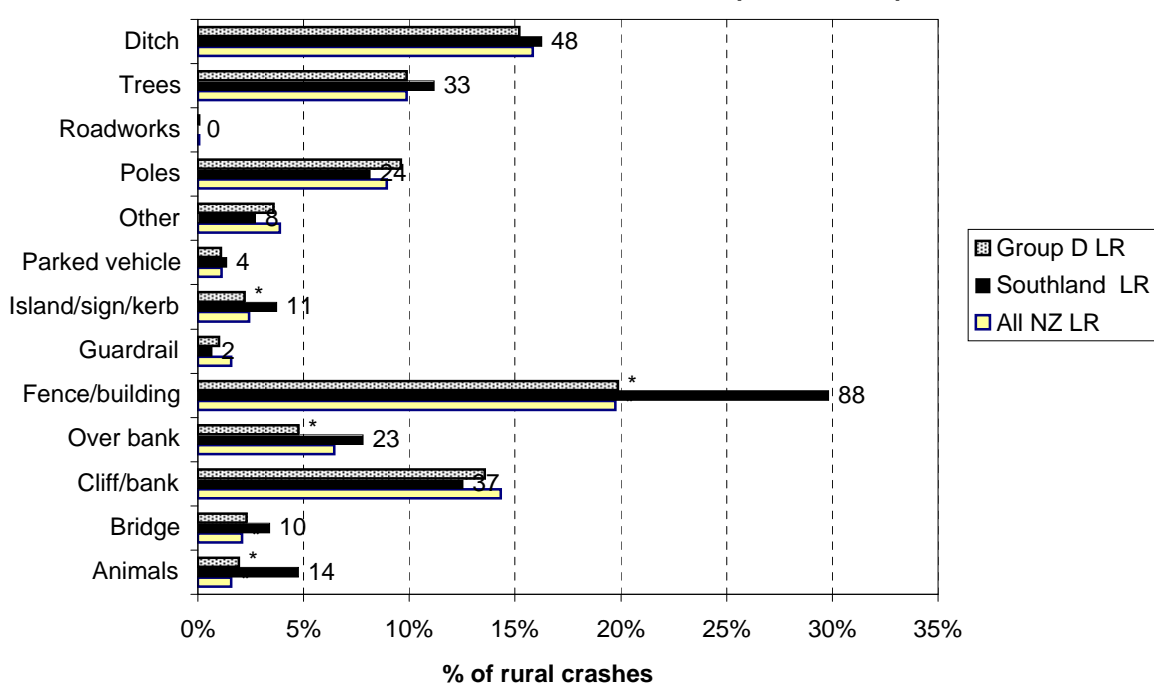


**Figure 8.25 Objects struck - urban
Southland District local roads (2003-2007)**



Note: While the graph plots percentages, the number of crashes is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

**Figure 8.26 Objects struck - rural
Southland District local roads (2003-2007)**



Note: While the graph plots percentages, the number of crashes is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

